

# THE IRON AGE

New York, November 14, 1918

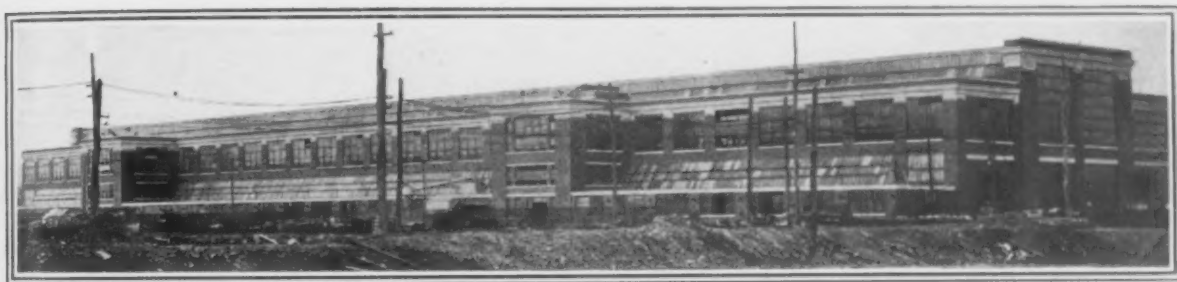
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## New General Electric Steam Turbine Shop

Interesting Construction and Other Features in Large Plant Designed for Heavy Machine Work—Production Methods Followed

BY F. L. PRENTISS

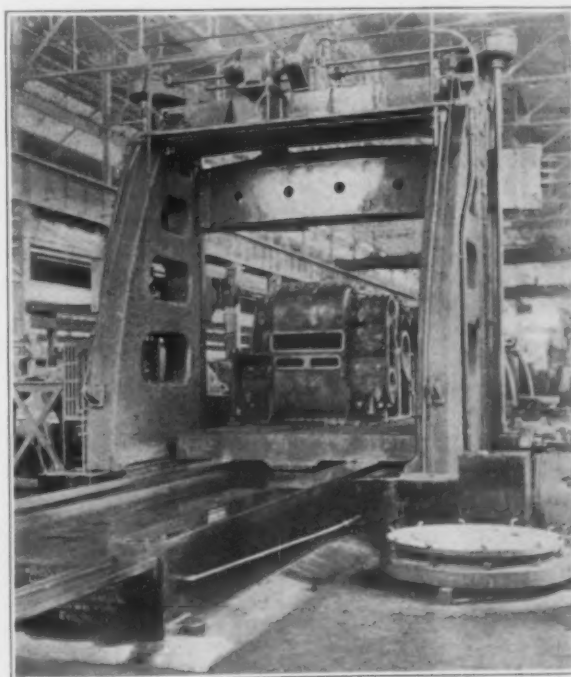


A MACHINE shop that is regarded as a model one for heavy machine work was recently placed in operation at the Erie, Pa., works of the General Electric Co. This shop is notable because of its size, substantial construction, lighting facilities, convenience of arrangement and various other features of design and interior layout. It is used at present for building steam turbines, but it can be readily adapted to other classes of heavy machine work.

The building is 800 ft. long and 210 ft. wide, and its substantial character and the completeness of its equipment are indicated by the fact that over \$1,000,000 was spent in its construction. It is equipped with 650 machine tools, a large share of a heavy type, representing an investment of over \$5,500,000, and the jigs used cost another \$500,000. Few shops have so much machinery under one roof.

The building has a skeleton steel frame of heavy construction, brick curtain walls and liberal window surface in factory ribbed glass, the lighting by the windows in the side walls being augmented by that supplied from the continuous sloping glass sections of a roof of the Pond type. The building

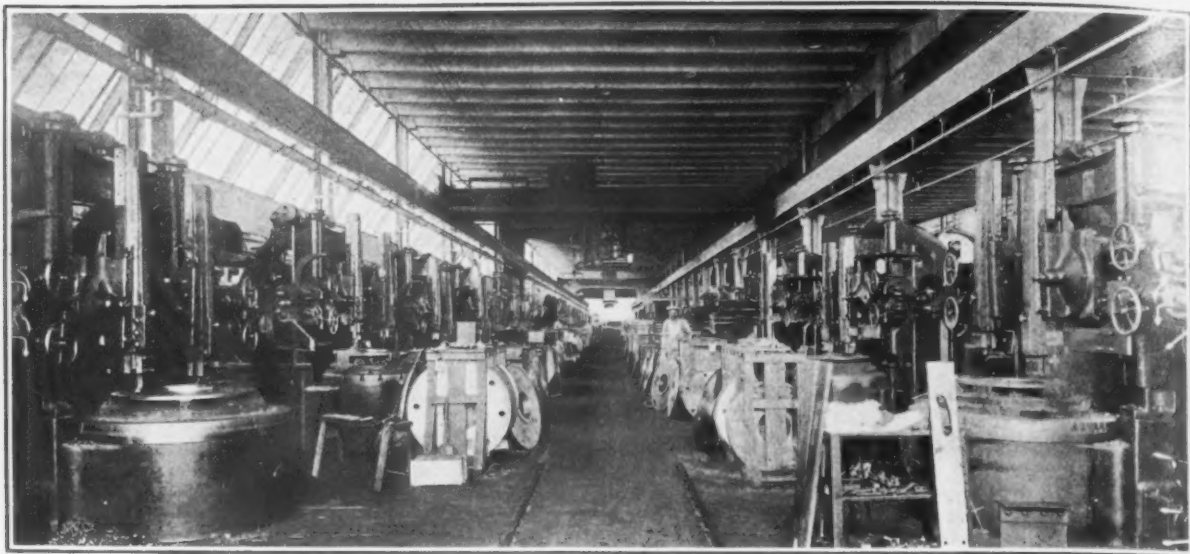
is divided into three bays, a high bay for heavy machine work, assembly and testing bay on the west side 83 ft. 4 in. wide, and two 44-ft. bays used for lighter machine work and sub-assembly. In addition, there is a low lean-to on the east side. The large bay is 46 ft. in height to the bottom chord of the roof truss and the crane rail is 36 ft. above the floor. This bay is served by a 50-ton, a 30-ton and two 15-ton electric traveling cranes with a 40-ft. span. An additional crane of 100-ton capacity will be installed.



Large Assembled Gear Cases Are Planed in the High Bay, the Roughing and Finishing Operations Being Performed on Two or Three Cases at the Same Time. These operations are done on a 16 x 10 x 25-ft. Pond planer

Above the two east bays is a gallery, providing a second-story machine shop. The two east bays are 28 ft. 6 in. high to the gallery floor, and have crane rails 19 ft. 6 in. above the floor. One of these east bays is served by a 20-ton and three 15-ton cranes and the other by four 15-ton cranes. The crane rail on the gallery floor is 18 ft. above the floor, and 6 ft. head room is provided above the crane rail. The gallery floor is served by four 5-ton cranes, two in each bay.

The construction of the gallery floor is unique. It has two 42-ft. spans, is of reinforced concrete, and is carried on steel pockets fabricated on the steel building columns and plate girders, the pockets sup-



Continuous Sloping Window Sections Are Provided on One Side Just Beneath the Gallery Floor Diffusing Light Under the Gallery. This illustration shows a portion of the outside bay in which bucket wheel forgings are bored

porting reinforced concrete beams. Over the beams are 5-in. concrete slabs. The object of this design of the reinforced floor is to do away with the inherent vibration or local tremor that exists in an ordinary wood floor supported on steel beams. The gallery floor is designed for a live load of 250 lb. per square foot.

The monitor roof section, 90 ft. wide, covers approximately one-half of the high bay and one of the east bays, the remainder of the roof section from the monitor to the side walls on each side being nearly flat. With this design of roof, light is diffused through the sloping glass sides of the monitor. The outer half of the large bay is lighted through the glass in the side wall sash, providing a continuous window surface excepting for 5-ft. pilasters extending to the roof. Similarly, light for the inner balcony bay comes through the roof monitor and the light for the outer half of the balcony is supplied through the side wall sash. The lean-to has an average height of 12 ft. sloping toward the main building. Above the lean-to along the main side wall is a continuous glass section sloping out from the side wall, diffusing light under the gallery. This glass section is in 5-ft. sash, three-sash high. On the west side of the building, window surface is provided up to the roof between the 5-ft. brick pilasters.

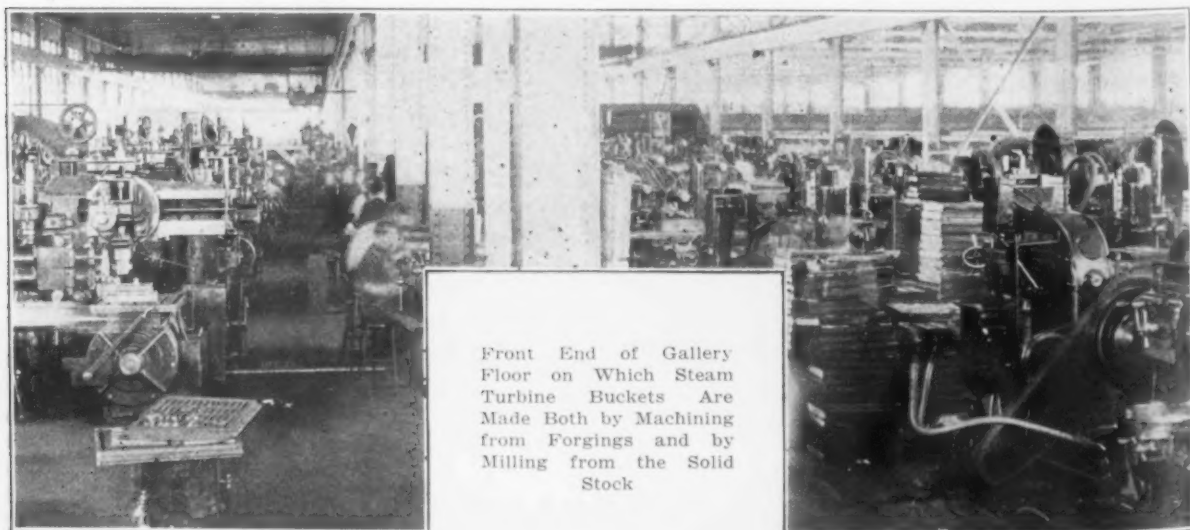
The building columns on each side of the main bay are 28 in. deep and are placed on 25-ft. centers. Between the two smaller bays and on the east side

are 16-in. columns. The roof is of 3-in. tile laid on 1-in. reinforced concrete, the reinforcing being triangular mesh. This is covered with three-ply asbestos roofing.

On the east side are two service towers, 38 ft. x 50 ft., four stories in height, or the same total height as the building, and located at quarter points or 200 ft. from each end. The main and mezzanine floors of the towers provide space for toilet and locker rooms for the men and women, a smoking room, a women's rest room, and a refuse and scrap storage room. Each tower is provided with stairs and in each is a 10-ton, 10 x 21-ft. elevator, which serves the gallery floor. The first floor of the tower provides passage way for tracks connecting the outside yard and the interior of the plant, and tracks are laid on the elevator floor so that the upper floor is connected with the transportation system below.

The front lean-to is occupied by offices and a cafeteria and the remainder is used for storage of raw and semi-finished material, while the rear lean-to is reserved for the punch press, journal babbitt-ing, pickling and heat-treating departments. With the different space requirements taken care of in the lean-to and towers, as outlined, the entire main floor space is available for the various manufacturing processes and the location of the elevators and stairways does not interfere with crane runways, which extend the length of the building.

The floor throughout except in the high bay and



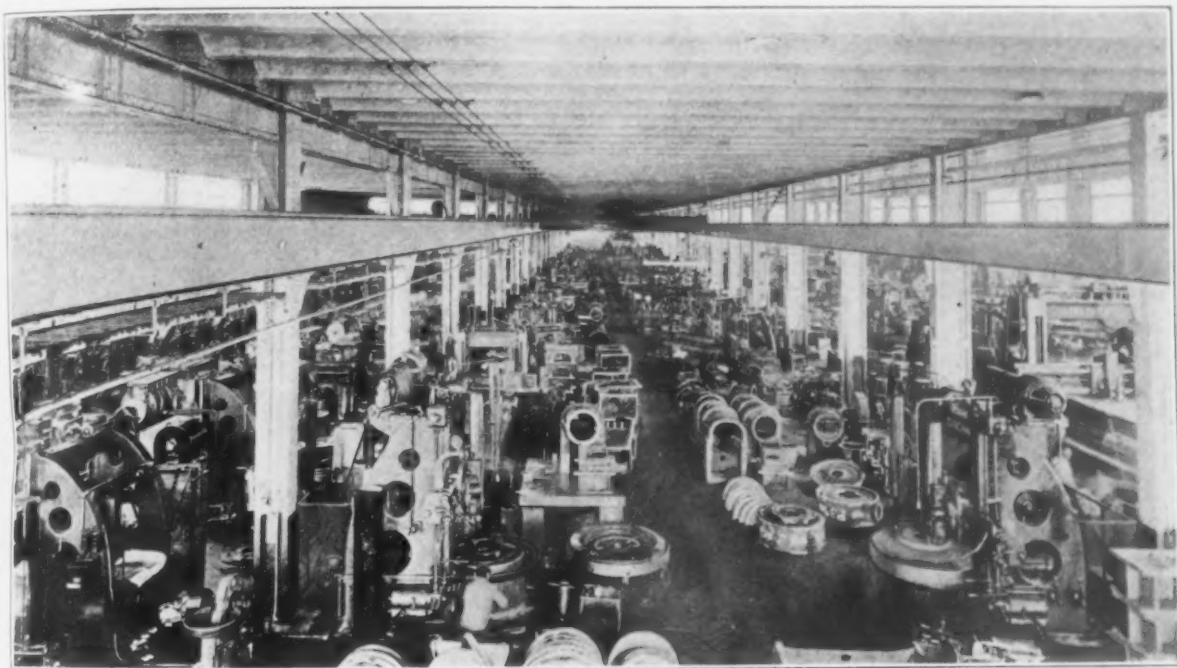
Front End of Gallery Floor on Which Steam Turbine Buckets Are Made Both by Machining from Forgings and by Milling from the Solid Stock

service towers is 1½-in. square-edge maple on 3-in. tongue and groove hemlock. The hemlock is toenailed directly on a 1½-in. tar-concrete cushion which in turn is supported on a 6-in. concrete sub-base. In the gallery the reinforced concrete floor takes the place of the sub-base used in the ground floor. The layer of tar-concrete is an unusual feature of floor construction and is used to provide a seal and keep moisture from working up into the hemlock and to secure a cushion effect. The composition of tar-concrete is 35 gal. of refined coal tar to 1 cu. yd. of sand, the two ingredients being mixed, heated and rolled on the floor while hot. The flooring in the high bay is rectangular wood blocks of Ayer & Lord Tie Co. make, laid on a 6-in. sub-base of concrete. The sub-base was finished smooth and coated with suitable pitch, on which the wood block floor is directly laid. The floors in the service towers are finished in concrete.

The building is heated by exhaust steam from

four sections. These are standard gage tracks and not only connected with the stock yards but are tied up with the entire transportation system of the works. Similarly connected to the trackage system are three tracks that enter both the front and lower end of the building in the center of each bay and extend a distance of 50 ft. so that material can be taken from the cars with the overhead cranes and moved along as required. The finished turbines are loaded on cars on tracks in the shipping department at the rear of the testing department at the lower end of the assembly and testing floor. Cars on the industrial tracks are handled with storage battery locomotives. For handling small parts or the small lots of material in the process of manufacture around the floors where tracks are not provided, standard storage battery trucks are used.

To relieve the cranes that span the large bay, an auxiliary crane runway is located above the final



The Center Bay Showing the Section in Which Small Miscellaneous Castings Are Machined. This illustration shows the unique construction of the gallery floor, the supporting reinforced concrete beams being carried on steel pockets fabricated on the steel building columns and girders

the central power station, this steam coming from the bleeder type of General Electric steam turbines. The plant is equipped throughout with circulating refrigerated drinking water supplied from an ice machine located in one of the towers. All top hung sash, such as are used in the monitors, are electrically operated by turning a switch, bringing the control to one point and placing responsibility for the ventilation of all parts of the building in the hands of one man.

The building is designed for stock yards along the east and west sides, each served by a 10-ton crane with a 75-ft. span. The heavy castings are brought in from the stock yard on the west side adjoining the heavy machine work department in the high bay. Footings are in for the runway for the crane that will serve the stock yard on the east side, and as soon as the crane is installed lighter material in castings, forgings and shafting will be handled from the storage yard on this side.

#### Transportation Facilities

The transportation facilities throughout the plant are very complete. Three transfer tracks extend clear through the plant, dividing each bay into

assembly and testing department in the lower section of this bay and under the main crane runway. This has a 40-ft. span, on which is mounted a 15-ton crane. The various traveling crane equipment includes Cleveland, Toledo, Champion and Whiting cranes. In addition to these cranes there are a number of jib cranes of from 1 to 5-ton capacity for sub-assembly work and Sprague monorail cranes, Ford Tribloc and other chain hoists in ½ and 1-ton capacities for handling semi-finished and finished parts in the punch press babbitting, heat-treating and some other departments.

Power for the building, supplied by the main power plant, is delivered to a transformer station adjoining one of the towers, where it is stepped down from 11,000 volts. Alternating current is used for both the cranes and machine tools, the only direct current being for four 250-hp. motors for driving gears under tests requiring variations of speed ranging from 45 to 450 r.p.m. The current is distributed from the sub-station in conduits under the floor to the bays and to individual machine drives.

In the manufacturing processes and routing of material, practices followed in plants engaged on quantity production are adhered to as far as is



practical in a plant that is not on a production basis. The machinery is so laid out that work progresses through the various machine operations toward the final assembly and testing floors. Under this plan parts are routed through the bays from each end to a meeting point near the center, parts are assembled in the bay where built, and the transfer of parts from one bay to an adjoining bay is eliminated except in the case of a sub-assembly composed of parts machined in more than one bay.

In the first section of the large bay, one machine on each side, are a 10-ft. and 8-ft. planing machine placed in parallel line with the bay. Below these are 5-ft. and 6-ft. planers placed in a diagonal position and smaller planers in the adjoining bay are similarly located. Large gear cases, composed of three castings bolted together, are first given a roughing and finishing operation on the large planer, two or three of the cases usually

quarter gear blanks which come in through a side door are machined on boring mills, and the gears are assembled on the shafts in the third bay where the shafting is turned. The shafting is received in the form of rough forgings from outside at the front end of this section. Gear hobbing is done in the fourth or last section of this bay, from which the assembled gears and shafts go across to the large bay for final assembly.

The front of the gallery is divided into two sections for milling machine operations on two types of buckets. On one side buckets are machined from forgings, and on the other they are milled from the solid stock. The buckets reach the department from the lower end of the first floor, where they are pickled. After the buckets are finished they and the bucket wheels, which are made directly underneath, are assembled in the next section, the wheels being brought to the gallery in an elevator. The assembled part then goes to the assembly floor



Hobbing Large Slow Speed Gears and Pinions for Steam Turbines on Gould & Eberhardt Machines. These are double helical gears 5 ft. 5 in. in diameter and 34 in. wide

being planed at the same time. The next section of this bay is taken up with vertical boring mills ranging in size from 16 ft. to 5 ft. An interesting machine operation further along in this bay is the boring of gear cases. This operation includes the boring of a hole 22 in. in diameter and 20 in. long, two holes 15 in. in diameter and 10 in. long, and a smaller hole for the slow-speed gear, intermediate gear and pinion. These operations are done on two horizontal boring mills, a large jig being provided between the two machines for supporting the boring bars, three holes being bored at one time on the two machines.

The upper section of the center bay is used for machining small miscellaneous castings. The work is first laid out on a table and goes to a battery of planers, where the joint faces are planed, next to radial drills, the parts being bolted together after drilling, and then to the next section of the bay for the boring operations. From this section the parts pass on to the fourth section for sub-assembly. In the third section of this bay bearings are bored, turned and drilled, after which they go to the fourth section for assembly. The bearing castings come from the babbitting room at the south end of the lean-to.

In the third or outside bay on the east, four parts are made. In the first quarter the rough bucket wheel forgings are bored. In the next

below, where the bucket wheels are put on the shafts. The two lower sections of the gallery floor are used for small miscellaneous machine work and for the toolroom.

On the lower floor all work is inspected before it comes off the machines. The milling machines on the gallery floor are arranged in each bay in transverse rows, back to back, and the work passes down one row, back to the other, and then to an inspection bench at the end of each aisle. After this inspection it is operated on by the next two machines, returning to the next inspection bench, and continuing this way until the part is finished. Most of the milling machine work on this floor is done by girls, men being provided to set up the fixtures. Girls to some extent are also employed on inspection work in the stockroom, toolroom and as time clerks. The work is inspected after sub-assembly as well as being given very rigid inspection during tests.

Each bay is in charge of a general foreman who has under him several sub-foremen and under the sub-foremen are gang leaders. To keep track of the progress of the work, a chart or progress sheet is provided in each sub-foreman's department on which are listed the various parts that are being made in that department and the number that is to be produced during the month for each specified unit. The center of this chart is filled with square



blank, and when the schedule of a certain operation is completed, the square is marked over in red opposite the proper classification at the side and underneath the unit designated above. These charts are fastened on boards that swing on steel posts located at convenient points on the floor, and a glance at the chart shows what work has been completed in the department and whether it is up to schedule. The numerous operations in some departments necessitate the use of several charts, but as many charts or progress sheets as are required in the department may be hung on one post.

## BRITISH MACHINE TOOLS

### The Industry Compared With the American and German—Relative Efficiency in Output

A British author, J. Judson, recently delivered an address in England in which he reviewed the British machine tool industry and compared its growth with that of America and Germany. He said that in his own native town of Keighley 27 years ago, there were only eight machine tool firms who employed almost the same number of men as did 14 firms immediately before the war broke out. The same conditions existed in other British machine tool centers. During this period Mr. Judson says he had an exceptional opportunity to judge at first hand the efforts of the British machine tool industry in general as compared with those of Germany and America, both of whom have easily succeeded in passing the British group in output, in number of firms and in the manufacture of precision tools. He considered the losing of the first place in such an industry a very weak link in the Imperial chain.

#### British Airplanes and Foreign Tools

Take as an illustration, said the author, the manufacture of the most wonderful precision engines of modern times, aircraft engines, and any observant visitor to the various factories laid out for the manufacture of these masterpieces of engineering science will see that the British machine tool plays a minor part; in fact, it is incorrect to term an aeroplane engine British made when 70 or 80 per cent of the machinery necessary for making the said engine is of foreign origin. With the manufacture of aeroplane engines he coupled rifles, machine guns, motor cars, commercial vehicles, magnetos, scientific instruments, bicycles, sewing machines, typewriters, etc. On the other hand, all these commodities and all other engineering and peace-time articles can be manufactured both in America and Germany with machine tools of their own makes.

The largest machine tools to be found in Great Britain at the present time (purchased before the war, of course) are of German make, and it is a fact that the Germans can build the largest machine tools in the world. If this country had been represented by business men in pre-war days to a greater extent than was the case, a matter such as this would have been remedied long ago.

#### German Tool Output and Exports

During 1917 the output of German machine tools was \$40,000,000. The author could not say what the British output was, but a quarter of this amount would probably be a reasonable estimate. This tremendous output of German machine tools, of course, has been necessary in order to enhance the output of munitions of war, and it must be clearly understood that, due to the British blockade on the seas, the Germans were unable to draw machine tools from America as we have been able to do; and the Germans have been obliged to make everything for themselves in this particular line, and consequently we may see a very important group of German machine tool makers in the field after the war. Prior to the war, it must also be borne in mind that they were exceedingly efficient in the manufacture of machine tools and their

In nine months, to a day, after the first brick was laid, the first turbine had been completed, tested and accepted. This record of building the plant and getting it under way was remarkably good considering the substantial type of construction, the delays in building work due to the unusually severe weather last winter and slow deliveries of machinery. Its accomplishment was due to the fact that the building was erected in sections and machinery was placed in operation in the first section long before the lower sections were anywhere near completion.

accessories, and to prove how successful they were they exported in 1912 over £3,000,000 value into 20 different countries throughout the world, against Great Britain into the same countries of less than £750,000 in 1913.

Incidentally, it might be mentioned that the German banks and the government thoroughly understood the importance of the industry and backed the various companies in every way. While blaming the British machine tool makers in general for their conservatism in the past, it would not be fair to the British group not to acknowledge that they have not had the facilities which the German companies enjoyed. It would also be ridiculous not to admit that our group could have done equally as well as the Germans or any other nation, provided British firms had received the wherewithal as regards finance, government sympathy, and secured unrestricted output.

#### British and German Munition Output

Toward the end of 1914 the author had occasion to meet an American who represented one of the principal American makers of turret lathes, and when asked the approximate production of munitions of various kinds in Germany, as against Great Britain, he said 20 times the quantity would be quite a reasonable estimate. This was long before the Ministry of Munitions was formed in this country. The author could not mention any figures which were voted by the authorities to be spent on the machine tool program in order to enhance the output of munitions of Great Britain, and to approach the output of the Germans, but the amount was fabulous. When the Ministry of Munitions was formed, Lloyd George, then Minister of Munitions, asked some of our experts what they thought was approximately the output of German munitions against ours, and when he was told that a reasonable estimate would be 10 times the quantity, he was staggered. Had he met the American gentleman just referred to, who stated 20 times the amount, then it would be reasonable to assume that Lloyd George would have been still more surprised.

Coming back to individual cases of output, he asked his American friend what would he base the output of his particular machine in Germany, as compared with a similar machine installed in Great Britain, and he said the Germans would get about twice as much output, and, comparing the said machine installed in Russia, he said the Germans would get out ten times as much.

These comparisons are simply other examples to prove how important it is that Great Britain shall be strong in the future in the manufacture of all her requirements in the machine tool line; further, that the maximum output from machinery shall be secured, and that restriction of output shall be cast aside for all time. Let us import toys or curtains, or any other commodity of minor value, if it is necessary, to do so, but on absolute essentials let us be sure in future we can supply our own needs.

Canada has some modern by-product ovens, but the greater number of ovens in Canada are of the beehive type. At the beginning of this year, the *Engineer*, London, states, there were approximately 1874 beehive ovens in Canada, 240 Bernard ovens, 30 Bauer ovens, 620 Otto Hoffman ovens, 224 Koppers ovens, 60 Solvay ovens, and 101 Mitchell ovens.

# The Engineer in Relation to the Foundry\*

## Machine Designs Not Adapted to Advanced Foundry Practice—Comparison of Correct and Incorrect Patterns for Floor and Machine Molding

BY E. S. CARMAN

**E**NGINEERS in general, my years of engineering experience lead me to say, do not thoroughly understand either pattern making or molding, especially machine molding, and consequently they are unable to design in the most efficient manner. But in contrast the engineer is thoroughly familiar with and understands machine-shop practice. In his education he has received instructions and experience in up-to-date machine-shop practice, while in most cases his foundry experience was limited to old methods, and machines, if used at all, were not of modern design.

This lack of interest regarding foundry operations applies in some cases to the management as well, for we find them spending tens of thousands of dollars for

general machine designing and its relation to modern machine molding. They also will show the good results that flow from properly preparing and making the patterns, all for the purpose of saving in the foundry the skilled man power that to-day is so essential to build ships and make munitions to win the war. We have been accustomed to think of the foundry as a dark, dirty, dusty, disorderly and unhealthy place, but the modern foundry is as light, clean, clear, orderly and healthy as any other of the industrial shops.

### The Jobbing Foundry

The foundry that we are most concerned about is the jobbing foundry or that foundry which does not have large quantity production from individual patterns. Therefore, Fig. 1 gives an idea of what may be accom-

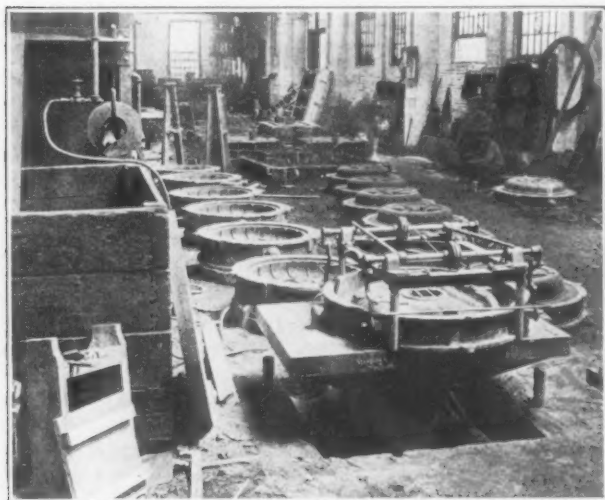


Fig. 1—What a Molding Machine Can Do in a Jobbing Foundry

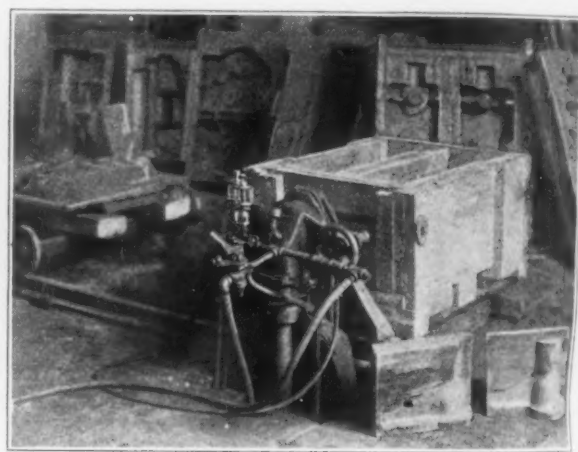


Fig. 2—Molding Machine Adapted to a Variety of Work

machine-shop tools where they are not willing to spend hundreds of dollars for foundry tools.

Why are these things true? Why not accept some of the responsibility of the present foundry conditions and then do your part in convincing the engineer and the management that the foundry can no longer be overlooked and considered a dirty and disagreeable place, not worthy of consideration. The specialty foundrymen have been and are trying to make the foundry a better place in which to work; but there is no reason why the jobbing and other foundries should not be doing their part. The engineer will welcome co-operation and when foundrymen work together for the good of both, then all foundries will be, as the specialty foundries now are, equal in progress to other industries.

The illustrations that accompany this paper indicate clearly some new possibilities, especially those of

pished in a day when a molding machine is used in a jobbing foundry. The machine shown here is known as a plain jolt machine. It accomplishes only a portion of the full amount of work required in making a mold. Fig. 2 shows a jobbing foundry machine of the roll-over type. The core boxes seen around this machine show how readily it can be changed to handle the many different boxes that are required for this work.

The roll-over jolt machine represents the greatest progress made in machine molding as applied, to the jobbing foundry. We wish to keep in mind this fact as we further discuss this subject. Fig. 3 shows several jobbing foundry

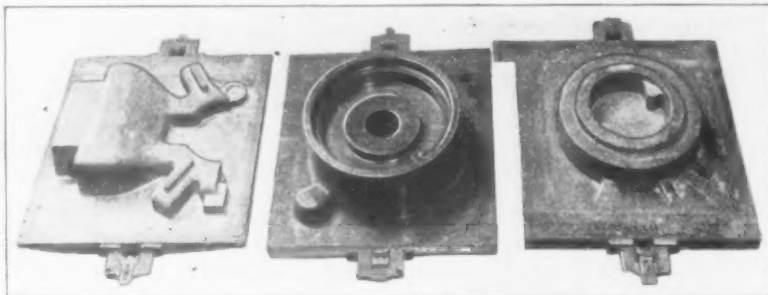


Fig. 3—A Group of Jobbing Foundry Patterns

patterns made of wood and mounted upon wood pattern plates for machine molding. Fig. 4 shows a pattern as ordinarily made for hand-rammed floor production. Fig. 5 shows the same pattern mounted for machine molding.

These patterns, after being placed on pattern boards for machine molding, showed an increased production of from 100 to 600 per cent, while records show that if the pattern is originally made on a pattern plate for

\*From paper, "Engineers—Their Relation to the Foundry in Saving Man Power," read Oct. 9 before the American Foundrymen's Association. The author is with the Cleveland Osborn Mfg. Co.

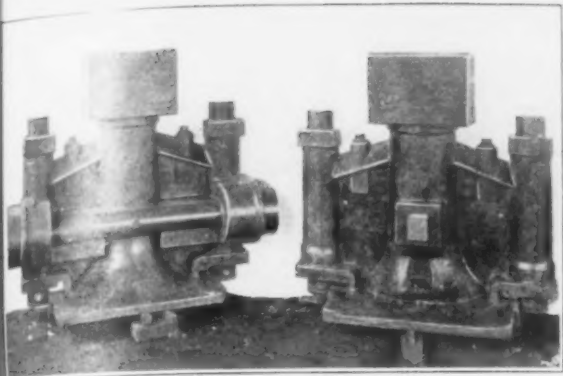


Fig. 4—A Heavy Pattern Arranged for Hand Molding

machine molding, its cost is less than when made to be used for hand-rammed molding. I show these views in order that engineers and manufacturers may realize that if all their patterns were made for machine molding the price per pound of castings would doubtless be less, and if patterns were so made it would give the foundries an opportunity to install molding machine equipment which without the co-operation of the engineers and manufacturers they do not wish to do.

Fig. 6 shows a very difficult molding job for a foundry. The particular design cannot be criticised, as this shape is quite necessary. Therefore, the outfit shown can be used only on the floor in which manner the greatest production can be obtained. This, however, cannot be said of all the engineer's output, as many times the foundryman finds this design similar to Fig. 7, in which he has complicated molding by drawing a bracket with round bosses, while the more economical design would be that shown at the top, in which the bosses or loose pieces are eliminated.

#### Understanding Foundry Operations

Fig. 8 shows the necessity of the engineer understanding foundry operations, for if the mold is to be made on the floor by hand the rib indicated as "loose piece" in the design (shown at the top) should be on an angle in order to eliminate the core as shown on the bottom of the illustration, but if this particular casting was to be made on a molding machine, the horizontal rib is then in order, since when made on a molding machine the loose rib (shown at the top) would not give satisfaction.

Fig. 9 emphasizes the need of thoroughly analyzing the design in the drafting room before permitting it to pass as final. The casting shown in this view is a hub and flange, such as is used on escort wagon wheels. There were 500,000 of these particular castings to be made and, therefore, the more necessity for eliminating from the design anything that would require additional

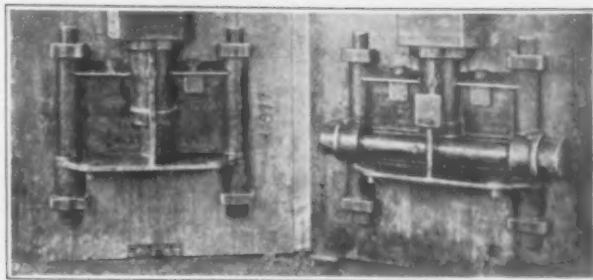


Fig. 5—The Same Pattern Mounted on Boards for Machine Molding

man power. For some reason or other, you will notice that there is a depression in the stem of the hub and because of this depression we have a difficult foundry operation. There seems to be no apparent reason for this depression, for when made as shown above the picture there seems to be ample strength and in no way does this change in the design seem to impair its usefulness. The production of this casting with the depression necessitated the ramming core, which is just above the bottom board, in the mold, while the proposed design without the depression would not require the core.

Fig. 10 shows this core in detail and the many operations involved in its production, and when we stop to consider that to produce this core for the entire quantity the cost amounts to over \$6,000, you can readily see the great amount of man power that was consumed.

#### Eliminating Machining

In regard to the saving of man power in the machine shop by a design that will do away with the machining of joints, the views following will show clearly the advantages thus gained. Fig. 11 shows a machine, the base of which is cast separately from the side cylinders, necessitating the machining of the joints and bolting them together with finished bolts in order to secure the rigid construction necessary. Fig. 5 shows the pattern of this particular base when made to be cast integral, while Fig. 12

shows a similar casting. You will note that the design is such as to eliminate many of the ribs and projections and practically one-half of the machining time.

#### Machine Tool Industry

The machine tool industry perhaps offers the greatest opportunity to the foundry engineer at this time as machines are now being produced in very large quantities. Inasmuch as the design is such that it does not readily lend itself to machine molding, I believe that if the present designs were analyzed by a competent foundry engineer, it would be found that in most cases

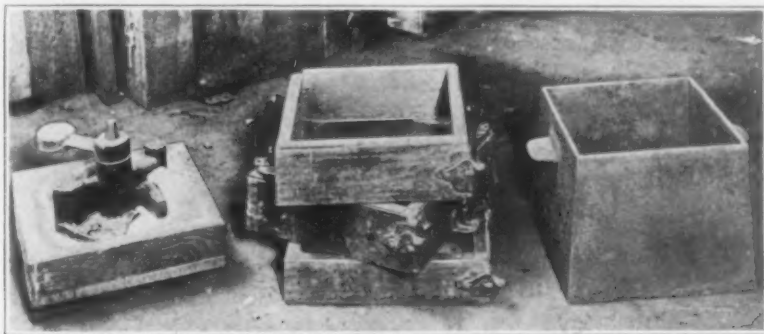


Fig. 6—Pattern of a Shape Best Adapted to Floor Molding

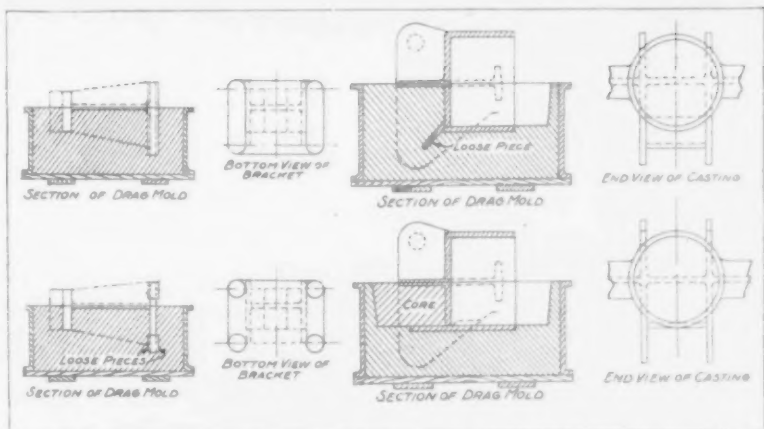


Fig. 7 (Left)—A Bracket Pattern with Loose Pieces Forming Bosses Shown at Bottom. The improved design at the top

Fig. 8 (Right)—Why the Engineer Should Understand Foundry Practice. Note loose piece in mold at top



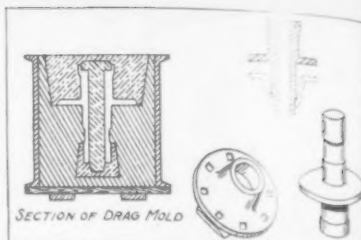
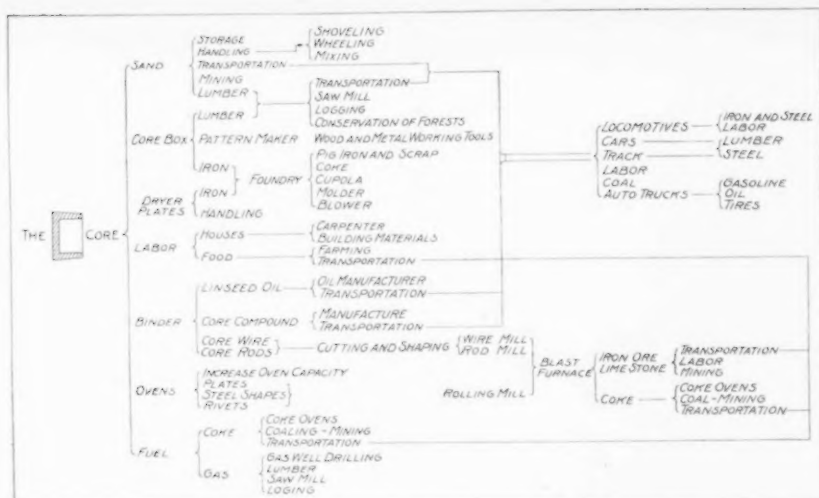


Fig. 9 (Above)—Hull for Escrow Wagon. An unnecessarily difficult design

Fig. 10 (at Left)—The Trouble Analyzed

by the fact that the automobile is to-day within reach of most every one in the country, while in the early days of bolted design, the price was prohibitive.

they could be changed to do away with some of the present difficulties, thereby making possible an enormously large production by machine molding. Fig. 13

shows a view of a well known machine tool bed. This casting was very difficult to mold because of its many projections and uneven parting lines.

These views are shown in order to suggest to engineers' minds the desirability of analyzing in detail their designs with a view to eliminating man power in the foundry as well as in the machine shop. They are also shown in the hope that the foundrymen will feel encouraged to bring to the public's attention the desirability of educating its boys to enter this broad field of opportunity.

#### The Automobile Success

The automobile engineers and foundrymen have been pioneers in co-operating, making possible the production of complicated castings in great quantity at a low cost. Their success is clearly shown

chines that are yet to be analyzed and the design changed in order to make the casting a good molding machine operation for the foundry, and the

one with which we are doubtless most concerned with to-day is that of castings used in the shipbuilding industry. Since quantities have become large and the design more nearly uniform or standard, a great opportunity is presented to the engineer and foundryman to co-operate, making ship castings by machine molding with its consequent saving of man power.

Many of the ship casting patterns readily lend themselves to mounting on pattern plates, thereby making possible machine molding while in other cases it is necessary to design the original pattern to be molded on a machine, and in a few instances designs can be profitably

changed to eliminate some of the molding complications.

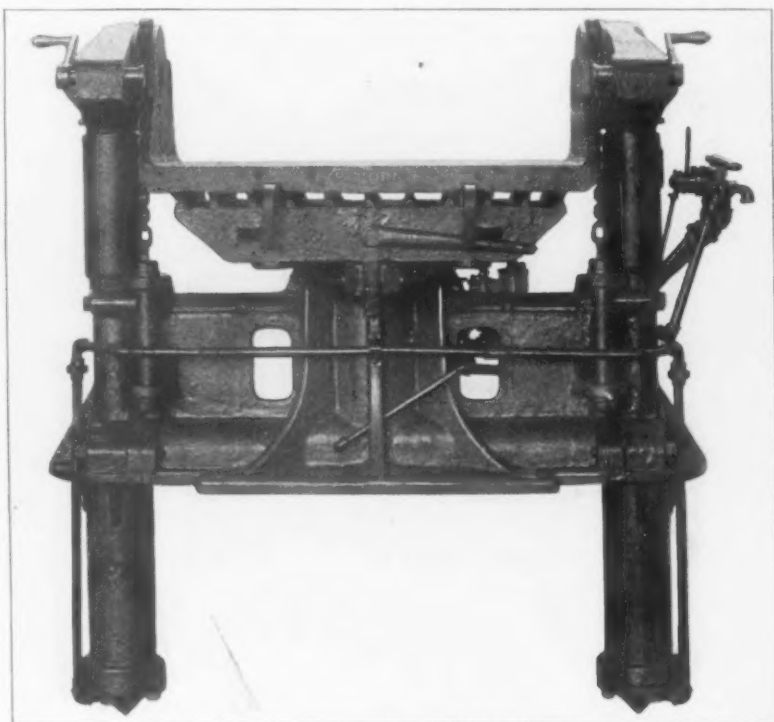


Fig. 11—A Machine with Parts Cast Separately, Entailing Unnecessary Machining

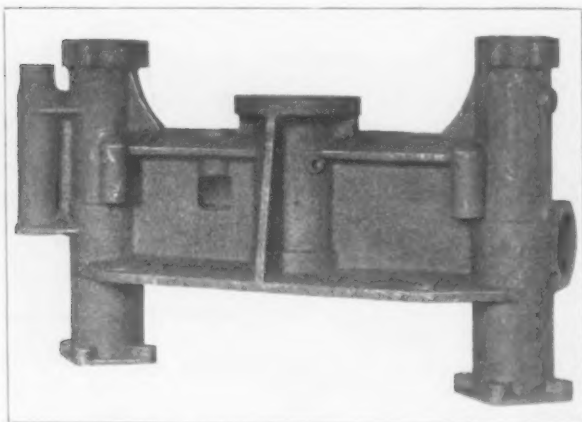


Fig. 12—Casting Designed to Eliminate Unnecessary Machining

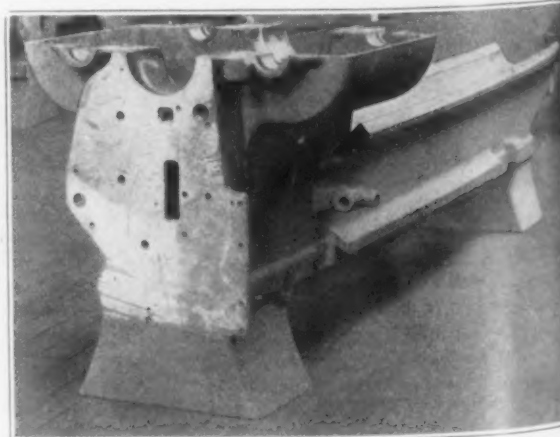


Fig. 13—A Machine Tool Casting of Difficult Design

## A MODERN POURING SYSTEM\*

## Hand Cranes and New Type Pouring Device the Salient Features

The system, and the device which it is the purpose of this paper to describe in detail, was invented originally for use in the shops of the Brillion Iron Works, where a large number of gray iron castings are made daily. Where a device of this character is used the iron should be distributed to the various floors either by trolley ladle or by some other means. Each floor is equipped with a small, easily-operated hand crane or trolley which usually runs across the shop at right angles to the distributing ladle tracks. This hand crane or trolley carries a small ladle from which the molds are poured. In most shops the cupolas are located near the middle and the distributing ladle makes alternate trips to each end of the molding room. The operator of the distributing ladle controls the filling of the small ladles. The latter are handled entirely by the molders, who not only pour off the floors but in some shops shift their own weights. The general arrangement

of the system is clearly shown in Fig. 3. Figs. 1 and 2 give a detailed view of the pouring ladles.

The pouring ladle yoke is suspended from the lower end of a piece of pipe or steel of convenient length. The ladle itself is carried in a bail to the shaft, to which the tilting lever is attached. For handling up to 350 lb., the yoke slides over the suspension bar and rests on a large cam which is held in position by a pawl. When the pawl is released the yoke and ladle may be raised or lowered

a distance of about 10 in. by operating a lever connected with the cam. Upon receiving metal from the distributing ladle the pouring ladle is brought to its lowest position and is afterwards raised to any height convenient to the operator within the range of the device. The metal shield which is secured to the yoke over the ladle protects the molder's eyes from the intense glare of the hot iron. This, it is said, results in more accurate pouring and fewer spills. The men also appreciate the release from eye strain. For

handling up to 1000 lb. of iron the heavier construction shown in Fig. 2 is employed, in which a geared hoist takes the place of the cam.

The overhead trolley which carries the pouring ladle is made up of brackets to which turned wheels 12 in. in diameter are attached. These wheels are fitted with roller bearings to cut down the friction loss. The tread of the wheels is turned to accommodate the 16-lb. rail on which the trolley travels. This arrangement is designed to withstand a load of 1000 lb. A somewhat heavier type is also built to handle loads of 2000 lb.

In the latter case the brackets are heavier and the wheels are 16 in. in diameter. This is known as the 1-ton pouring crane. This crane may run lengthwise of the floor and be equipped with a trolley which runs on the lower flange of the eye beam and travels across the floor so that any point spanned by the crane may be reached by the ladle. The recommended height for a track to accommodate this over-

head construction is 12 ft., although a little more or less height is not objectionable.

The pouring device shown in Fig. 1, previously described, is built for the lighter classes of work. The large hoist shown in Fig. 2 is similar in construction to a chain hoist and is equipped with cut gears and rope drums which give it a possible lifting range of 60 in., although the standard is 36 in. This pouring device has a molten metal capacity of 1000 lb. and a general purpose capacity of 2000 lb. It can be operated in a minimum headroom of 10 ft., although 12 ft. is preferable.

It is so arranged that the ladle bail can be easily removed by taking out two bolts, making it possible to quickly substitute another bail of any desired shape to accommodate other classes of foundry work.

These pouring devices can be used for handling various materials in foundries as well as for pouring. Flasks, for instance, may be shifted from the gangway to the molding machines. Heavy molds also can be handled. With the aid of the 1000-lb. hoist previously described, two men can handle molds weighing half a ton with very little effort. The device also is of service in shaking-out flasks.

Tests show that when the pouring device is loaded with a weight of 200 lb., the ladle can be started with a push of approximately 8 lb. and after it is in motion it proceeds almost entirely by its own momentum. For this reason the device has been installed in some foundries where girls are being tried out for light work.



Fig. 3—Pouring Molds by Means of Overhead Cranes



Fig. 1—Pouring Device Suitable for 350 Lbs. of Iron



Fig. 2—Hoist for Loads Up to 2000 Lbs.

\*Abstract of paper, "A Pouring System for Modern Foundries," by Mark P. Ohlsen, Brillion Iron Works, Brillion, Wis. Prepared for the American Foundrymen's Association.

# The Integrity of the Malleable Casting\*

Possibility of Obtaining Thoroughly Sound Castings—Use of Chills Detrimental—Effect of the War on the Industry

—BY ENRIQUE TOUCEDA

WHILE many of the problems in connection with the metallurgy of the malleable process have now been solved, we know with certainty the conditions that should obtain in order to regularly produce such a character of hard iron that when annealed it will yield metal of superior strength and ductility, as well as all the details of heat treatment that will uniformly produce best results. Failure, however, on the part of some to make sure at all times that castings are invariably sound throughout, remains the one deep-seated canker which, if not cured, bids fair to eat into the vitals of the industry.

When unsoundness does exist it usually arises and has to do mainly with that character of porosity resulting from disproportionate sections in the casting which manifests itself as a rule never in blow holes, as such arise from other causes, nor in voids of any size; but in a more or less fine sponginess which weakens the section at its location.

## Value of Tests of Each Heat

There is unquestionable value derived from the physical tests of each air furnace heat, for it is through such tests alone that the manufacturer can be assured, as well as prove to the purchaser's inspector, that up to and through the annealing process he has produced exactly what was sought; but this is as far as it goes, for the latter is not buying test bars, nor are these being used commercially. In what has preceded it has been implied that the majority of the producers of these castings are in a position to positively guarantee both the quality and uniformity of their product when measured by physical tests on test-bars from each heat. That this is true the writer can state unqualifiedly, while in the case of a more or less limited number, a similar statement in regard to the integrity of their castings can be made with equal force and assurance; but that he is forced to make this particular qualification is exactly what has occasioned the choice of this topic by the writer.

It is more satisfactory always to be specific and to furnish data where such is possible. With this object in view I subjoin figures showing the combined monthly average ultimate strength and elongation of some 32 different companies covering May, June and July, the data being gathered from many hundreds of tests made during each month:

<i>May</i>	
Average ultimate strength, lb. per sq. in.....	50,171
Average elongation, per cent.....	10.78
<i>June</i>	
Average ultimate strength, lb. per sq. in.....	50,235
Average elongation, per cent.....	11.14
<i>July</i>	
Average ultimate strength, lb. per sq. in.....	50,715
Average elongation, per cent.....	11.59

The above data should furnish justification for what has been stated as to the ability of many makers to produce with constancy a metal of superior strength and ductility, even under the handicap of inability, due to present stress, to make use of as good a quality of pig iron and fuel as is necessary for best production. Also, in looking over these records it is only fair to consider that included in them are bars from foundries in which high strength and ductility have been sacrificed, in order to secure such a character of metal as would machine with the greatest ease, this property in these particular cases being the predominating requirement.

\*From a paper presented at the American Foundrymen's Convention at Milwaukee, Wis., Oct. 7 to 11, 1918. The author is a consulting metallurgist, Albany, N. Y.

In order to illustrate what is possible of accomplishment there is recorded herewith a run of 24 successive heats, the bars having been received in three batches, the first consisting of 12, the second of six and third of six:

### First Batch. Lot of Twelve

Average ultimate strength, lb. per sq. in..... 57,481  
Average elongation, per cent..... 22.81  
In this lot one bar had an elongation of 29 per cent and another of 27 per cent.

### Second Batch. Lot of Six

Average ultimate strength, lb. per sq. in..... 58,022  
Average elongation, per cent..... 18.12  
One bar in this set had only an elongation of 9.36 per cent, this lowering the average considerably.

### Third Batch. Lot of Six

Average ultimate strength, lb. per sq. in..... 57,371  
Average elongation, per cent..... 21.83  
One bar in this set stood 30 per cent elongation.

The average ultimate strength of the 24 bars is 57,969 lb. per sq. in., and the average elongation of the 24 bars is 21.42 per cent.

If the manufacturer has been able to arrive at such a point of excellence, at a point where he can positively guarantee that the test bars from each and every heat will meet very rigid and exacting requirements, it is pertinent to inquire why in the case of many have they been so dilatory in connection with proper molding methods.

An attempt is here made to answer this correctly and to place the blame where it belongs. It is safe to assume that in the very early days of the industry the malleable iron casting that was solid throughout was the exception. Lack of solidity, as already inferred, was not due to the presence of blow holes, but was the result of failure on the part of the founder to recognize the fact that in castings of disproportionate sections, and by far most malleable iron castings are of this character, the thinner sections, solidifying more quickly than the heavier ones to which they are attached, would draw the metal from these still fluid parts, before they in turn were able to secure their full quota of metal from the risers.

This state of affairs I presume was productive of so many failures that efforts were concentrated to better these conditions, first, presumably by varying the position and size of gates and risers, etc., but finally by some bright mind determining that the cause of the trouble was fundamentally due to the difference in the rate of cooling of thin and thick parts. Once this conclusion had been reached, it is easy to see that the use of the chills to equalize cooling was the natural and obvious outcome.

## Use of Chills Harmful

It was then perhaps found that while, under the arrangement of gates and risers used, the chill could not equalize the cooling sufficiently in the majority of cases to make heavy parts perfectly sound, it did serve both to lessen the unsoundness or shrink as it is called, and to drive it from a place where its existence meant scrap to a locality much less harmful.

While not positive, I feel quite sure that the use of the chill originated with the malleable iron founder. Be this as it may, its use in the early days, while an important step in advance, has since operated to deter progress along the lines of soundness to a greater extent than has any other agency, for the reason that the founder has remained content to adhere to this as a palliative rather than seek after the real cure.

Aside from cases of intricate and improper design in which it is practically impossible to properly feed the casting, the chill has been baneful in its influence and



a curse. As already stated there are now a large number of foundries who are able to guarantee that the physical properties of their castings will square with that of the test bar. Such, for the most part, have discontinued the use of the chill, and are so feeding their castings by means of large reservoirs of metal that soundness results and shrink is absent. These companies have made a thorough study of molding principles; gates and runners are properly proportioned and properly set; also the pressure of metal entering the mold is so regulated by the height of the reservoir above the highest point the metal attains in the mold that by virtue of this pressure or head, coupled with the mass of metal in the reservoir, the feeding of all sections, light or heavy, continues until solidification is completed.

With these foundries the day of the chill has passed, and while a few must be used from time to time in extreme cases, even this will cease as soon as the designer awakens to the fact that slight alterations in his design will render their need unnecessary.

### The Effect of the War

The changes brought about by the present world conflict have had a profound influence on all lines of business, particularly in the manufacture of steel and iron products. It has necessitated the starting of many new plants as well as the enlargement of the old ones to the point of greatest possible production. This, coupled with the exigencies of munition and ordnance work, has in turn necessitated the employment of a legion of men in the capacity of engineers and inspectors, educated for this particular purpose at the expense of the Government. Many of these men would never have followed these vocations had it not been for the war, so where previously a limited number were familiar with the manufacture and characteristics of steel and iron, we will at the war's end have thousands of highly trained men who by that time will be very proficient, due to this varied and unusual experience; while those previously engaged in the business will be still better equipped as they will have had full advantage of this extraordinary opportunity.

All this, if it signifies anything at all, means that

in the future we will be dealing with men who understand their business, and it does not need a prophet to forecast that all ferrous products from now on are going to be measured under higher and higher standards of inspection. Unsound castings are not going to get by. From now on there is but one safe road to follow and its direction is clearly indicated. The laxity that obtains in many plants in regard to these most important and vital considerations should cease if they have any regard for their own well being or for the industry as a whole.

### Perfectly Sound Castings Possible

Our opportunity is at hand, because it has at last been demonstrated beyond a shadow of doubt that the most complicated malleable castings can be regularly produced by many concerns without a trace of shrink, and of a strength and ductility not thought possible some years ago. The engineer now knows this to be the case and knows as well that we have outgrown and made up for past misdemeanors. Discard the chill, and in its place substitute risers or heads of such height and section as will furnish sufficient pressure of fluid metal to make sure the casting's integrity.

Have some one on the job who understands this art and keep him busy with every pattern that needs attention. Impress him with the thought that he is the most important man in the place, which under conditions now existing is the case, and hold him responsible for any lapse in the direction of unsoundness.

In breaking hard iron castings in search for shrinks do not assume that none are present until those thought solid have been annealed, because this treatment will develop a shrink not discernible prior to annealing.

In the malleable industry a new era has dawned, a fact frankly admitted and acknowledged by the trade. Let us stand shoulder to shoulder for mutual help in the matter of soundness. Let the integrity of the casting be the very first and foremost consideration, for a solid casting made of ductile metal having an ultimate strength of but 40,000 lb. per sq. in. is unquestionably superior to one in which shrink is present though the test bars in the latter case yield an ultimate strength of 50,000 lb. per sq. in. and an elongation of 20 per cent.

### American Steel Specifications in Spanish

Latin-American concerns wishing to specify American structural steel for building and railroad purposes can now do so without difficulty by referring to pamphlets in Spanish and English just issued by the Bureau of Foreign and Domestic Commerce, Department of Commerce. These pamphlets are intended to facilitate sales of such materials in Latin countries, and are published in response to numerous requests from those countries.

The text defines with scientific accuracy the generally accepted American standards, as adopted by the American Society for Testing Materials, and the publication of the series has been made possible by the cooperation of the American Society of Civil Engineers, and the Bureau of Standards and Bureau of Foreign and Domestic Commerce, of the Department of Commerce.

The five pamphlets announced to-day are, "Standard Specifications for Structural Steel for Buildings," Industrial Standards No. 8; "Standard Specifications for Structural Steel for Locomotives," Industrial Standards No. 9; "Standard Specifications for Carbon Steel Bars for Railway Springs," Industrial Standards No. 10; "Standard Specifications for Quenched and Tempered Carbon-Steel Axles, Shafts and Other Forgings for Locomotives and Cars," Industrial Standards No. 12, and "Standard Specifications for Carbon Steel Forgings for Locomotives," Industrial Standards No. 13. These can be purchased at 5c. per copy from the Superintendent of Documents, Government Printing Office, Washington, or from any of the district or co-operative offices of the Bureau of Foreign and Domestic Commerce. Other numbers of the series will follow.

### Protest from the Tin Importers

The recently formed Tin Importers' Association, Inc., New York, has drawn up a detailed set of resolutions reviewing the steps leading up to the establishment of international control of the tin trade and calling attention to the fact that "contrary to its practice in similar matters the Government has not conferred with the tin trade generally before taking this momentous step." These were presented to the War Industries Board Nov. 6. The paragraphs covering the protest are as follows, the association regarding the placing of the tin trade in the hands of the U. S. Steel Products Co. as a monopoly:

*Resolved*, That this association respectfully protests against any action resulting in the creation of a virtual monopoly and protests against the creation of such a monopoly, even if intended to be created as a temporary measure only, as such a monopoly in its practical effect would extend for an indefinite period, as is believed both here and abroad; and be it further

*Resolved*, That the association requests the Government that it be given an opportunity to be heard upon the matter, to the end that it may submit plans for the exercising of such control over tin as may be reasonably necessary under the circumstances, either through price fixing, profit limitation, control of distribution through a general impartial body (as is being done in the rubber, tanning and other industries) or otherwise.

An industrial survey is being conducted in the Pittsburgh district by the United States Employment Service, with the co-operation of the Pittsburgh Chamber of Commerce, for the purpose of classifying labor now employed in non-essential industries. This survey is preliminary to the transfer of labor in non-essential lines to essential war work.

# Electric Furnace in the Steel Foundry

## Comparison of Electric and Converter Costs—Relation to the Power Station—Future of Electric Steel Foundries

BY W. E. MOORE

IN the last two years a great light has broken over the electric furnace situation for the steel foundrymen. To-day they are beginning to favorably consider the electric furnace for steel foundry work, for by that process both small and moderate sized castings of intricate character can be made wherever suitable electric power is available, and better than by any other process. This statement is borne out by the records from a number of operating plants. Steel foundry practice follows the general rule that whatever can be made better by an improved process will in the end be manufactured cheaper.

### The Popularity of Electric Steel

Primarily, electric steel has become popular for its superior physical properties. While such steel can be made with a more satisfactory chemical analysis, using the same grade of raw materials than by other processes, experience has abundantly demonstrated that when made to the same chemical analysis, it will average about 15 per cent greater tensile strength or ductility, depending upon its heat treatment, and is more resistant to shock and responds better to heat treatment. The reason for this is that the steel, being made in a closed furnace and in a reducing atmosphere away from the contaminating influence of combustion gases, is more solid, freer from gases and less prone to intrusions. Being absolutely dead when properly made, and averaging lower in sulphur, electric steel is less liable to show shrinkage cracks between ribs and being more fluid it is not liable to piping or blow holes.

Since electric steel can be made quite hot a large proportion of the heat can be shanked off with less loss from skulls in the ladles. With acid electric steel it is customary to use lip-pour ladles, but when basic steel is being made bottom tap or teapot spout ladles are generally preferred so as to prevent contact of the basic slags with the silica of the molds.

### Cost of Converter and Electric Steel

The following figures show present day comparative operating costs for liquid steel in the ladle:

*Average Charge for Two Tons of Converter Steel Divided into Four Cupola Charges*

Charge, Lb.	Cost per Ton.
912 low phosphorus pig iron.....	\$55.00 \$22.60
912 Bessemer pig iron.....	31.40 14.00
1,816 steel scrap.....	30.00 24.30
360 silicon and spiegel.....	120.00 19.33
333 coke.....	10.00 1.49

Total cost of charge for two net tons of steel.... \$81.72  
For one net ton of steel..... 45.86

Additions per ton of steel:

10 lb. 80 per cent ferromanganese at 15c.....	\$1.50
6 lb. 50 per cent ferrosilicon at 8c.....	0.48
1 lb. aluminum.....	0.33
Power for blower motor.....	1.25

Total cost materials and powder per net ton of steel.....	\$49.42
Average cost of cupola and converter linings.....	1.20
Labor cost.....	3.00

Cost of converter steel per net ton..... \$53.62

*Average Charge for Three-Ton Acid Lined, High Power, Rapid Type, Polyphase Electric Foundry Furnace*

Charge, Lb.	Price per Net Ton	Cost for 3 Tons	Cost for Net Ton
6,200 machine shop turnings.....	\$19.00	\$58.19	\$19.39
100 mill scale.....	5.00	0.25	0.09
60 electrodes.....	180.00	5.40	1.80
1,650 kw-hr. (550 per ton) electric power at 1c. per unit.....		16.50	5.50
20 lb. 80 per cent ferromanganese.....	300.00	3.00	1.00
15 lb. 50 per cent ferrosilicon.....	160.00	1.20	0.40
1½ lb. aluminum.....	680.00	0.50	0.17

Cost of materials and labor for 3 tons of liquid steel....	\$85.04
Cost of materials and labor per ton of liquid steel....	28.35
Average cost of linings and roofs.....	.50
Labor cost on furnace.....	2.00

Cost per net ton of electric steel in the ladle.... \$30.85

\*From a paper presented at the American Foundrymen's Convention at Milwaukee, Wis., Oct. 7 to 11, 1918. The author is president Moore Electric Furnace Co., Pittsburgh.

The acid open-hearth furnace is still frequently used, generally with oil fuel and mostly in foundries making the heavier classes of steel castings. With this furnace the standard price must be paid for low phosphorus heavy melting scrap. The fuel oil consumption for such open-hearth furnaces in foundries usually runs from 45 to 90 gal, costing at the present time from \$3.375 to \$7.50 per ton of liquid steel. In the largest of the steel foundries, it is true, producer gas is frequently used at less fuel cost.

The great drawback of the open-hearth furnace is its well-known inability to furnish steel sufficiently hot to satisfactorily make medium and small castings without undue costs for refractories and largely increased fuel consumption. The inconveniently large heats of the open-hearth furnace, 15 to 40 tons, count heavily against it in small casting work.

### Basic or Acid Electric Furnace

As to the most suitable type of electric furnace for installation in the ordinary steel foundry, basic steel will be demanded by many producers, who will then lower their limits of sulphur and phosphorus to a level not practicable to reach with the acid furnace using commercial grades of scrap. At present the call is for acid-lined furnaces, as present specifications are liberal as to sulphur and phosphorus content and high grade shrapnel and other munition scrap is available in large quantities. The acid furnace is simpler, cheaper and faster to operate. It is strongly recommended that a furnace be purchased so designed and constructed that it is adaptable to basic operation. This means that the furnace shell must be of large diameter and the bath must be of large area and shallow.

### Depth of the Bath

The furnace should not be of the long arc type nor of the small diameter shell deep bath type, if the best work is contemplated. Indeed, even for acid melting there is a noticeable difference in the quality of the steel obtained from the large diameter, shallow bath furnaces compared with that made in the deep bath type of furnace, for with the latter it is not feasible to obtain the same mechanical reactions from the additions put in to refine the steel as when the bath is of the shallower type. Nor is it possible to so thoroughly deoxidize the metal by maintaining the reducing atmosphere in the furnace.

For foundry work it is especially important to have the furnace constructed with all possible operating conveniences and facilities, so that one heat may follow another with the utmost rapidity and with a minimum loss of time for the necessary furnace adjustments. It is therefore important to look carefully to the facilities for making bottom and fettling the banks.

### Electrical Maintenance Facilities

All practicable facilities must be at hand for maintaining the spouts, maintaining and renewing the roofs and door liners and also for convenience in adjusting the electrodes in their clamps. Suitable apparatus for switching and adjusting the currents and voltages with which it is desirable to operate also should be provided. Practically all modern furnaces are now equipped with automatic regulators, which save a large amount of the attendant's time and do the work better than is possible with hand regulation. The very best facilities should be provided for handling the slag from the furnace and for tapping off the liquid steel. The slag can best be handled by tilting down the charging door, that is, tilting the furnace backward, so that the slag may be poured or raked off into a covered slag box, where its heat and presence do not interfere with and delay the operation of tapping the steel into the ladle.

It is strongly recommended that the furnace be kept as free from parts of machinery located underneath the shell as possible, for there is nothing that disgusts the operator more than to have a heat of steel cut through the furnace bottom and "gum up" a lot of gears, shafts, motors, etc.

#### Relation to the Power Station

From the power station standpoint, which also affects the cost of the power to the user, certain important considerations must be observed. The furnace should be of such size as will enable it to be maintained in practically constant operation, as all power is now sold on a load factor basis, and the more nearly continuously a furnace can be operated, the smaller that proportion of the bill for readiness to serve as compared with the energy charge will become, which means that the average cost of power per unit will be less. The furnace efficiency also will be higher, which makes the saving all the more important.

It is likewise important that the furnace should be operated with the shortest possible periods between heats, for during such periods the user loses a portion of his demand time, which would increase the readiness to serve charge. Also the furnace lining is cooling down quite rapidly and the electrodes are oxidizing away more rapidly than when melting the charge.

In some cases off-peak power is available at prices which usually do not embody more than a portion, if any, of the readiness to serve charge. In such cases it is frequently practicable to operate the furnace more cheaply during the off-peak periods, such as at night, on holidays, Saturday afternoons and Sundays.

It is quite important that the furnace should operate at the highest practicable power factor which can be obtained without undue disturbance of the power com-

pany's load, for by so doing the electrode, transformer, line and generator losses are maintained at a minimum. Engineering skill of a high order is required to forecast and select the best type of equipment, under the many varied power supply conditions which obtain in different localities.

Power companies without exception dislike to receive a single phase or unbalanced load. They either refuse to handle such a load at all or penalize the user by charging a higher rate. It is, therefore, essential for furnaces above the smallest sizes, say  $\frac{3}{4}$  ton capacity or less, to be arranged to receive a balanced polyphase power supply.

#### Future of Electric Foundry Industry

It is often asked when the electric furnace field will become saturated and electric furnaces no longer desirable purchases. It is believed the natural growth of the high-grade, medium and small size steel casting business will continue for years to come and demand the installation of a large number of electric furnaces.

The electric furnace is making possible the establishment of many small foundries, where heretofore the usual methods of producing steel have been too uncertain, complicated and costly. I believe that high-grade steel castings will continue to replace iron castings in increasing numbers. Tractor and truck fields provide a rapidly growing market for such castings. The railroads, tramways, agricultural implement manufacturers, machine tool builders and many other lines of industry are using steel castings in larger numbers from year to year. There is a wide field opening up for alloy steel castings of a grade that can be properly made only from electric furnace steel. Such alloy castings may advantageously be heat treated and in many cases will replace drop forgings.

### Proposed Dutch Iron Industry

An important statement, says the *London Iron and Coal Trades Review* of recent date, has just appeared in the German press in relation to the proposed establishment of a blast furnace plant in Holland with the financial support of the Dutch Government. The German papers gather from the Dutch press that at the last moment certain difficulties have arisen in regard to the statute which was to empower the State to hold shares in the proposed undertaking. Certain influential circles, after some hints dropped during the discussion on the subject of forming the new company, are not disposed now to acknowledge the national character of the projected undertaking without further formalities.

The scheme is being followed in Germany professedly with good-will. The discussion of the new development, however, in a Dutch economic journal is very hostile. Thus a correspondent puts the question whether, in view of the expected financial failure of the new undertaking, it would not be well from the very beginning to adopt appropriate defensive measures to protect the new industry against German competition. The author of the letter proceeds from the point that the Rhenish-Westphalian industry makes use of Rotterdam chiefly both for its import and export trade, and he suggests that it should either be made difficult for the German industry to use Rotterdam as a port of transshipment or that Dutch industrial interests should establish a merchant trade at that port which the Germans should be compelled to use by the Dutch Government, making this merchant trade a national concern. Another correspondent of the same journal, on the other hand, points out the difficulties which the German iron and steel industry will encounter in the home market after the war, and expresses the opinion that the Germans will not be able to think about forcing the export trade for a long time to come. The writer also refers to the course hitherto pursued by the negotiation for the formation of new syndicates, and draws the conclusion from this that the German iron and steel makers believe they will be unable to export for years.

The German *Bergwerks Zeitung* mentions it as a noteworthy fact that the names of the founders of the new Dutch company have frequently changed since the scheme was first brought forward. Some firms who could be said to entertain good relations with German industries have now disappeared from that list. On the other hand, new names have been added behind which, it is said, English or American influence lurks. The representative of some German iron and steel works was recently in Holland and had the guiding lines of the new Dutch economic policy explained to him. He was able to ascertain that various new companies are busily engaged in pointing out the dangers of importing German steel, and raising a hostile opinion against such imports. This has not been without effect, as large contracts are now being placed by Holland for various classes of iron and steel, including tubes, which are to be supplied by Swedish makers. The prices paid for the latter are said to be much higher than those for German products of the same class.

#### Denver and Salt Lake Scrap Meetings

Emory E. Smith, in charge of the Pacific Coast district of the scrap iron and steel committee, American Iron and Steel Institute, returning from a recent trip to Washington, stopped off at Denver long enough to form a sub-committee in that city to assist in handling the complicated scrap situation in that district. He called together representatives of all the iron and steel interests of Colorado at a meeting held in the offices of the Colorado Fuel & Iron Co., at Denver. At this meeting the following committee was appointed: S. G. Pierson, Colorado Fuel & Iron Co., to represent the steel mills; Alfred Cordingly, Queen City Foundry, Denver, and J. R. Henderson, Stearns-Rogers Mfg. Co., Pueblo, to represent the gray iron foundries; M. S. Radetsky, scrap dealer, and R. W. Harper, Government representative. At Salt Lake Mr. Smith invited all the iron and steel men of the State to a dinner. The situation was gone over carefully and there was a general interchange of ideas and information. A committee for that territory may be appointed later.



# Must Maintain Open Shop After War

President Barr of National Founders' Association  
Says Manufacturers Have Right to Demand Dissolution of Agreement Between Politics and Unionism

During the period of national stress members of our association have furnished the maximum of their strength and efficiency, have given ungrudgingly their sons and their resources, and have sought nothing but the success of the country's cause. Notwithstanding that we have been incorrectly held up from time to time as profiteers, we have shown a clean and efficient record, while on the other side of the industrial slate is a record of unpatriotic union labor action, and of attempts to decrease production.

I regard this statement as wise, because the evidence of its accuracy is complete, and because union labor domination, which is being insidiously fostered, is destructive of both our fundamental institutions and of individual rights. We are now confronted with a period of economic readjustment in which, regardless of our best efforts and highest hopes, the domination of closed shop unionism may precipitate marked industrial depression.

## Question of Readjustment

My purpose, however, in briefly reviewing the past is to direct your attention to the future. We are as unprepared for peace as we were unprepared for war. We are confronted, not so much with a question of reconstruction, as with one of readjustment, and without Federal assistance this is one that manufacturers must undertake to solve for themselves. Great Britain has one hundred and forty committees working on this question of readjustment. We have none. Responsible manufacturers believe it to be a problem that is legislative, not administrative, and if our Government fails to take up this question seriously, it is no reason why we should not ourselves undertake to look ahead and study the problem with painstaking deliberation. We must not make it an individual matter. We must consolidate our efforts and act as a unit for the promotion of all industry, for the maintenance of equitable performance, and to safeguard ourselves against paternalism, closed shop unionism and political interference.

## Throttling Agreement Must Be Dissolved

We may properly demand the dissolution of the throttling agreement between politics and unionism at the expense of industry, and urge the cessation of usurpation of power by Government officials or appointees.

The first and greatest problem which will demand the attention of our association and industry in general is the liquidation of labor. There is no one who will seriously contend now that peace is declared that we can continue to operate our mines and factories and compete in the world of trade, if we are obliged to accept a national 8-hr. day and pay the wages which have been imposed during the stress of political opportunity.

## Individual Effort Should Not Be Hampered

Our country has become commercially powerful only through the expression of individual effort. This wonderful accomplishment was not due to Governmental help, or to any efficiency on the part of public officers. But, unfortunately, this war has forced upon industry what may be described as dual control, or the substitution of a directive power which in itself is incapable and dangerous. The paramount thought is to take away from industrial heads that control through which alone responsibility may be definitely fixed and to inject the uncertainties of petty Government officials and shop committees having neither original nor definite

purpose, and with a depressing hand upon expansion and growth.

If our Governmental directive power in industry is to continue in the future in the form of a modified socialism, there will be destroyed this individual initiative which is the very foundation stone of our commercial development. This country must return to pre-war conditions, so far as the rights of the manufacturer, the farmer and every citizen are concerned. Congress has no power under the constitution to maintain the laws and practices put into effect because of the war. Neither the present executive, nor his successors, until the constitution of the United States has been abrogated or amended, has the authority to impose upon this country the plan of Governmental direction of industry and the destruction of property control.

## Divided Responsibility Condemned

We have no example in this country of a successful industry run on the plan of divided responsibility, yet we see to-day men placed in supervising positions unacquainted with simple fundamentals, and with the desire to perpetuate their power. Industry must be directed by trained men and unhampered by theorists, for if we depart from that plan we shall reap only chaos and industrial depression.

Are we to permit the destruction of our industries built up by hard work through many years? Are we to be a factor in the world trade, and are we to retain control of our home markets? Obviously an answer hinges on competitive costs. We cannot manufacture economically unless wages are brought to an equitable parity with production, even though it requires extreme measures to reach the point that will be understood by those who would sacrifice us on the altar of political unionism. If the trade of the United States is not of sufficient importance for the present Government to safeguard it, then perhaps when paternalism has been modified we shall be in a position to defend it ourselves.

## Attitude of Returning Soldiers

But let us for the moment turn to a brighter page. The news from all the war fronts is splendid; the triumph of its allied arms has forced peace. Our soldiers have fought side by side with the world's veterans and have shown their quality on every battlefield. The spirit that has been shown by every soldier in France or Belgium, in Italy or Siberia, inspires us to new efforts. There are millions of our soldiers coming home soon. They will have a word to say almost immediately concerning conditions here, and they will ask the relationships between politics and the lack of production which operated to their disadvantage. They will learn of many things, and will become a dominant factor in the politics of the United States. They will entertain no maudlin sympathy for experimental industrial socialism and will insist on fair play. They are the nucleus of a political fighting force which will demand clean politics and a better country. Shall we be worthy of their respect?

## Domestic Manganese Ore Supply Sufficient

An official announcement has been made with respect to supplies of manganese ore by J. E. Spurr, for the War Industries Board, who has been especially in charge of supplying the needs for that ore. "The rapid development of manganese in all parts of the country," says Mr. Spurr, "has been astonishing and it now appears that if it were absolutely necessary we could get along entirely without imported manganese."

A party of four Japanese is reported to have gone to the Olginsky district of Eastern Siberia for the purpose of investigating the iron mines there.

\*Abstract of annual report of William H. Barr, president of the National Founders' Association, at the association's twenty-second annual convention, Hotel Astor, New York, Nov. 13-14.

# Blast-Furnace and Cement-Kiln Potash

Government Investigation of Amount Recoverable from These Sources—Results from Electrical Precipitations—Dependence on German Supply

WASHINGTON, Nov. 12.—Special efforts to encourage the production of potash are being made by the War Industries Board, the Department of the Interior and the Department of Agriculture. Particular attention is now being paid to the possibilities of securing this much-needed fertilizing agent from blast furnaces and cement kilns. In this connection the Bureau of Mines has issued a special paper on the "potash situation" by A. W. Stockett as one of its series on "War Minerals Investigations."

An investigation is being made, says the author, to determine the total amount of potassium oxide lost in the dust of all the furnaces in the United States, but the figures are not yet available. Probably, however, the amount recoverable will exceed the total requirements of the country. Without taking into account the indirect advantage of cleaner gas for use in the stoves and gas engines, it may be safely stated that potash can be obtained from this source at a price that will enable it to compete successfully against the German potash under all conditions.

The recovery of potash as a by-product in the manufacture of pig iron was first investigated by R. G. Wysor, superintendent blast furnaces, Bethlehem Steel Co., Bethlehem, Pa. Dust settling in the stove and boiler passes was collected and was found to contain nearly 10 per cent of  $K_2O$ . Investigation showed that the potash recovered from this dust was only a small proportion of the total in the charge, being less than 2 per cent, and that 67 per cent of the potash was lost in the primary washers and in the stack gases. Experiments with electrical precipitation proved that practically all of the dust could be precipitated successfully. A plant for collecting the dust is now being erected at a 400-ton furnace at the Bethlehem Steel Co.'s plant at Lebanon, Pa., and another plant is to be built in Alabama at an early date. Mr. Wysor states, "I venture to predict that in the future dry cleaning will be adopted in many blast-furnace plants, and that many thousands of tons of potash, hitherto wasted, will be reclaimed." Charles Catlett has said, "It is easy to remove the fumes and dust from the gases without interfering in any way with the operation of the furnace. The investment would be moderate and the cost of operation of the potash-recovery plant low, while the gases would be improved for use in the stoves."

The same paper devotes considerable attention to the opportunities for recovering potash from the dust from cement works. It says:

The first cement plant to recover potash from the kiln was that of the Riverside Portland Cement Co. in California. Owing to litigation with nearby fruit growers, who claimed the fine dust escaping from the kilns was causing damage to the fruit trees, the company was compelled to install an electrical dust-precipitating plant to abate the alleged nuisance. Analysis of the dust thus collected showed that it contained about 10 per cent  $K_2O$ . The dust collector was completed early in 1913, and has been continuously and successfully in use ever since. What was originally considered an addi-

tional expense in the manufacture of cement has proved to be a highly profitable by-product.

Another plant is successfully using the same method at Security, Md., and both electrical precipitation and other methods of collecting dust are being used at different plants. A point in favor of dust collection is that no change in present methods of manufacturing cement is involved and at one plant the installation has led to a reduction of 10 per cent in fuel consumption, owing to the more careful attention required in burning the cement.

An investigation recently completed by the Bureau of Soils indicated that the probable maximum amount of potash that might be recovered from all the cement works in the country would be 100,000 tons of  $K_2O$  per year. It is not likely that dust-collecting plants will ever be installed at all cement works, but it seems reasonable to expect that the amount of  $K_2O$  to be derived from this source should reach 50,000 tons a year, or 20 per cent of the total normal requirements. Probably this amount could be increased somewhat by using, where available, rock containing more  $K_2O$  in the raw mix.

An objection raised to cement-kiln dust as a source of potash in manufacturing fertilizers is that if used in large quantities the lime content will cause reversion of the soluble phosphoric acid in the phosphate and loss of the ammonia in ammonium sulphate. The  $K_2O$  content of cement-kiln dust is also too low to permit its use as the only source of potash in a fertilizer that is to contain more than 3 per cent of  $K_2O$ . However, these objections can easily be overcome, and some potassium sulphate containing 40 per cent of  $K_2O$  is now being marketed by one of the cement works.

Published figures on the cost of production show that, allowing for amortization and interest on investment, potash can be produced by the cement companies at 30 to 50 cents a unit of  $K_2O$ , which will enable them to compete successfully with the German salts even at pre-war prices.

Thus the cement industry, especially in view of its geographical situation, seems one of the most promising sources of a permanent American supply of potash, and the Government should offer every possible encouragement to install plants for the recovery of potash, especially in cement works east of the Mississippi, as more than 90 per cent of the commercial fertilizer used in the United States is consumed in that area.

The iron industry, like the cement industry, is situated near the principal centers of demand for fertilizers, and should receive every inducement from the Government to erect plants for the recovery of potash, as it seems probable that these two industries could be made capable of permanently supplying the entire potash requirements of the country at a price that would encourage its more extended use as a fertilizer.

In his summary Mr. Stockett declares that the normal requirements of the country are 250,000 tons of potassium oxide per year against which there was a total production in 1917 of 32,573 tons. W. L. C.

## Pittsburgh Opposes Higher Freight to Canada

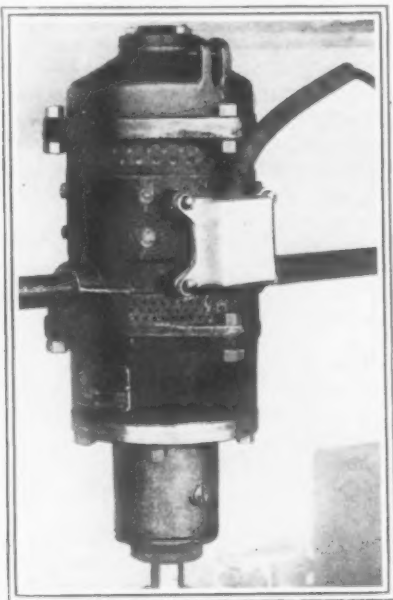
A meeting of shippers in the Pittsburgh district was held last week at the Chamber of Commerce, Pittsburgh, to protest against the substitution of class rates for commodity rates on shipments of iron and steel products from Pittsburgh and nearby points to Canada. The movement for class rates is said to have been initiated by the Canadian railroads. The principal objection of steel companies to the change is that it would give Buffalo producers a greater advantage than they now have in selling to the Canadian trade. The change

from commodity to class rates would increase freight rates from Pittsburgh to Canada on various iron and steel products from 30 to 90 cents per ton. The Pittsburgh district freight traffic committee will send the protest of Pittsburgh shippers to the United States Railroad Administration.

The Bethlehem Steel Co. has blown in its new Furnace A at the Steelton, Pa., works, which has been under construction for some months. This new furnace is of the self-feeding type, being the third of its kind now installed at the plant.

## A New Way of Countersinking Ship Plates

An interesting application of a portable electric drilling machine for countersinking ship plates has been adopted in a number of fabricating shops engaged on work for the Emergency Fleet Corporation. The standard practice has been to countersink these plates with a wall radial drill. The speed of this work has been increased and the labor cost reduced by using a portable electric drilling machine fixed in a buggy designed for the purpose.



Portable Electric Machine for Heavy Drilling, Reaming and Countersinking

One of the illustrations shows a buggy and portable drilling machine used by the Lewis F. Shoemaker Co., Pottstown, Pa. This company has supplied a similar buggy to the Hog Island Yard of the American International Shipbuilding Corporation. Other fabricating shops have built buggies of a generally similar design.

The drilling machine is fastened into the buggy by two studs that act as machine handles, the studs being screwed into trunnion bosses on the housing and fastened to the handles of the buggy. The buggy is counterweighted in front of the wheels. While countersinking the operator applies pressure to the buggy handles which provide leverage. When one hole is countersunk it requires but an instant to push the machine along to the next hole. The plates are laid out on the shop floor and when all the holes are countersunk in one plate it is removed with an overhead crane which puts another plate in its place.

A portable drilling machine of unusually heavy and rigid construction and of a powerful type designed for heavy drilling, reaming and countersinking, has recently been brought out by the Van Dorn Electric Tool Co.,



Buggy and Electric Drill for Countersinking Ship Plates

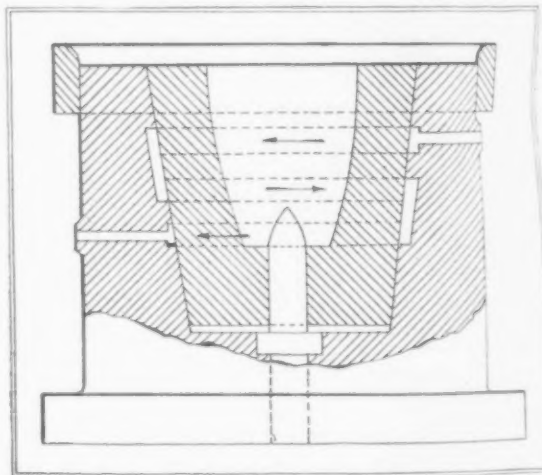
Cleveland, to meet the special requirements for this work and is used in the buggy illustrated. This is a ball-bearing machine throughout, the armature shaft, compound shaft and spindle running in ball bearings. The top head and gear housing are bolted to the motor housing, thus eliminating tapped holes so that there are no threads to wear out. A double row of ball bearings takes care of both the thrust and radial load. This is a direct current machine although it will also be designed for alternating current. Its current consumption is 230 volts and its speed is from 425 r.p.m. for no load to 160 r.p.m. for full load. Its spindle output at 20 amp. is 4½ hp. The machine is fitted with a No. 4 Morse taper socket. It will countersink a hole up to 1 in. diameter. It is stated that with the use of the buggy in this machine, a ¾-in. hole can be countersunk in 7 sec. The machine is 22 in. long over all and weighs 125 lb.

## Container for Shell Nosing Dies

A water-cooled cast-iron container for holding the chilled dies employed for bottling or forming the ogival noses of thick-walled high-explosive shells, which has been developed by Ralph Welbury, Nook Foundry, Hunslet, Leeds, England, is described in a recent number of the *Engineer*, London. This container is designed to overcome the trouble formerly experienced from the thick walls of the shell wearing out the dies during the nosing operation.

The container consists of a square or circular base to suit the particular press employed, while the body is hollowed out to receive the die and has a water channel surrounding the die space. The containers and the dies, which are machined to standard dimensions and are interchangeable, can be provided for 4.5, 6, 8 and 9.2-in. shells. The 4.5-in. container has a single mild steel band shrunk on it as reinforcement, while the others have two bands.

When the old form of die which was not water-



The Provision of a Water-Cooling Channel in the Container for Shell Nosing Dies Has Effected a Marked Increase in the Production Possible with a Single Die

cooled was employed, ordinary gray iron and even specially selected close-grained castings, it is stated, were worn out after producing from 20 to 70 shells. Now, with the new type of die the common average of 4.5-in. high-explosive shells which can be nosed by a single die before it is worn out is 11,000 and in one case it is stated that 20,000 shells of this size were nosed by one die before it had to be discarded. The regular output of 6-in. high-explosive shells is between 3000 and 4000 from one die, while with the 9.2-in. size considerably over 3000 shells can be nosed.

The success which has attended the Canadian organization for the vocational training of disabled men, according to the *Engineer*, London, is demonstrated by the fact that since its inception it has dealt with 20,458 members of the Canadian expeditionary force. On Jan. 1, 1917, 523 men were receiving instruction in 37 different trades or professions. On Jan. 1, 1918, 3143 were receiving instruction in 97 different subjects.



# Judge Gary Looks Hopefully to Future

He Points Out Dangers That May Arise and Calls for Unity and a Fraternal Spirit in Solving Post War Problems—Value of Co-operation Shown in the Past

Judge E. H. Gary, chairman of the United States Steel Corporation, in response to requests for an expression of opinion as to post-war problems, said:

"The most stupendous, the most costly and the most destructive of all wars, involving a multitude of questions that are vital to civilization, has been brought to a close. An organized, prepared and cruel foe has been decisively beaten. Advocates of the doctrine that might is right are now convinced of their error, if, indeed, any were genuinely sincere in their advocacy. An over-ruling Providence has controlled the destinies of men and nations and has provided for the betterment of the human race.

"All of us are grateful that peace has been restored and our hearts are possessed with a feeling of intensest joy. We need not wait for Thanksgiving Day to give thanks for the mercies bestowed upon us.

"There are many reasons why the armies of the Allies and the United States have been victorious. Volumes will be written on the subject. Credit for winning the war will be claimed by or in behalf of various countries, classes or individuals. The American soldier is surely entitled to praise, and he will receive it without stint. The soldiers of all other countries are equally deserving. The statesmen of the United States and of all other nations, by reason of ability, integrity of purpose and an unyielding loyalty, have contributed their share. There is glory enough for all.

## Unity of Purpose

"The final and controlling reason for success is found in the fact that during the last months of the conflict there has been a unity of purpose, a co-ordination and concentration of action, and a spirit of co-operation between nations, between armies and between individuals. In the United States, at least, we have learned by experience how much can be accomplished when the masses of the people are working in harmony with each other and with those in control of Government affairs, to secure a well-defined and much-desired result.

"We are now confronted with innumerable problems of magnitude. Around the peace table there will be presented questions of difficulty involving the social and economic life of the people of all countries. It will require the best talent and wisdom, patience and poise to secure for the respective countries all that they are justly entitled to in privilege, position and protection. Human nature will assert itself. Unreasonable and selfish demands will be made and insisted upon. Undue advantages will be sought.

"To be valuable and durable, a basis of settlement covering all substantial and honest differences which existed when the war commenced or have arisen since must be settled in accordance with the principles of exact justice. Equal protection and opportunity for all must be established. Above everything else, there will be created a league of nations which, in its result, will prevent future prolonged wars.

"Of high importance are the economic questions which must be faced in the near future. They underlie the procuring of food, clothing and shelter. After, but not before, the people throughout the world receive these, they are willing to consider other matters. These subjects will puzzle the best and most experienced minds.

## Possible Demoralization

"The war, with its cost in men and dollars, will bring reactions and readjustments with possible economic demoralization and depression, and possibly panics, and we must be on our guard.

"It is probable that after the declaration of peace,

when it becomes evident that purchases or deliveries for military purposes are reduced in volume, there will be more or less interruption in the conduct of general business. Therefore it is imperative that we exercise prudence, deliberation and courage. Much depends upon the attitude and the speech of men. It is easy to precipitate a feeling of demoralization, and no more difficult to develop a sentiment of confidence and serenity.

"There will be a normal and certain volume of business. This would not be increased by unreasonable or unfair means. There will remain the usual avenues, methods and opportunities for securing and transacting business with old customers and acquaintances. Any spasmodic effort to divert or interfere with the natural progress, or to secure more than a proper share, will, as a total net result, impede rather than accelerate prosperity. We must all trim our sails in accordance with the drift and amount of business. If all business men recognize conditions and conduct their different lines so as to adjust the questions of supply and demand on a legitimate basis, all will be benefited and may look forward with confidence.

## Reasons for Prosperity

"Upon a careful survey of the situation it will be found there are many reasons for believing prosperity in this country should be continued.

"The United States is the richest of all countries. It possesses one-third or more of the total wealth of the world. It has become the leader of finance, and in this respect may properly exercise a commanding influence. Its natural resources are immense and are susceptible of increasing development. If industry is protected and fostered in accordance with its merit, the war burden surely, even though gradually, will be lifted. We shall be a creditor nation with a large interest income, more virile, more progressive, more successful, wiser and better than ever before.

"And judging the future by the experience of the last few years, there will be a disposition, on the part of those in authority, to assist rather than to attack business effort. There will be study, reflection, friendly concern shown in relation to the needs and requests of enterprise and investment. Legislation and administration will be founded on ascertained conditions, deficiencies and requirements. Both capital and labor will be protected and rewarded. Employers will lead in the effort to promote the welfare of their workmen.

"Co-operation will be seen on every hand. Capital and labor will continue to co-operate with Governmental administration, and the latter will reciprocate in every practical and proper manner. This spirit has been exhibited in a marked degree in this country and other countries during the last four years, and its benefits have been demonstrated so clearly that they will not permit a return to the methods of destructive competition.

"As to the volume of business to be offered during the next few months or years, no one can accurately predict, but there are reasons to suppose it will be large.

## Government a Purchaser

"The Government will continue to be a large purchaser at reasonable prices for the finishing of incompleting projects and others contemplated for changes which will be incidental to a peace basis. In this connection it will be observed that the War Industries Board and other Governmental departments are already considering methods for assisting in the readjustment of business without serious disturbances or injury to general conditions.

"Besides, there has been in all lines of trade with which the Government has not been specially interested an accumulation of orders, which, to a large degree at least, will be placed so soon as the supply may justify. And in order to refill empty warehouses throughout the country large quantities of finished materials will be required.

"Moreover, in non-producing countries it has been impossible to supply their necessities on account of the war requirements, and these will commence to buy as soon as it is practicable, so that a large increase in exportations may be expected.

#### New Construction

"Extensions and new construction, which have been necessarily postponed for lack of material, will be taken up. And with all this is connected the thought that as a net result of the war the volume of cash and cash resources has been increased in a marked degree and will be expended for purposes of expansion and development in this rich and growing country. The circulation of money is considerably larger than it was at the beginning of the war.

"As a general proposition it is still true that the optimist who keeps within the limits of cash or stable cash resources will succeed. For the long future we have reason to believe that the country will be more progressive and more prosperous than ever before.

"It remains for all who have been permitted to survive the horrors of war to enter upon the new era with a united and fraternal spirit, and a fixed purpose to profit by the experiences of the past and to aid in the establishment of a permanent basis of peace and prosperity."

#### British Engineering Prospects in Brazil

The British Government, through the Department of Overseas Trade, has agreed to share with the British Engineers' Association the cost of an inquiry into the prospects of Brazil as a market for its engineering industry, says the *London Ironmonger*. An investigator will spend about a year in Brazil, and his reports will cover the whole field open to engineering enterprise. In making this announcement the Board of Trade seems afraid of hostile criticism, for it is carefully explained that the inquiry is not inspired by any hostility toward the merchants and other channels through which engineering business in Brazil has been conducted in the past. The sole desire is to obtain for the members of the Engineers' Association information of the requirements of the Brazilian market, the openings for engineering plant and machinery and particulars of the methods of doing business most likely to suit possible purchasers and users. It will be open to members who receive these reports to do business in any way they like. Some members of the association already maintain branch houses in Brazil, while others do business with that country through merchant firms. Manufacturing engineers who are not members of the association, but who desire to take advantage of the reports of the investigator, are invited to communicate with the secretary.

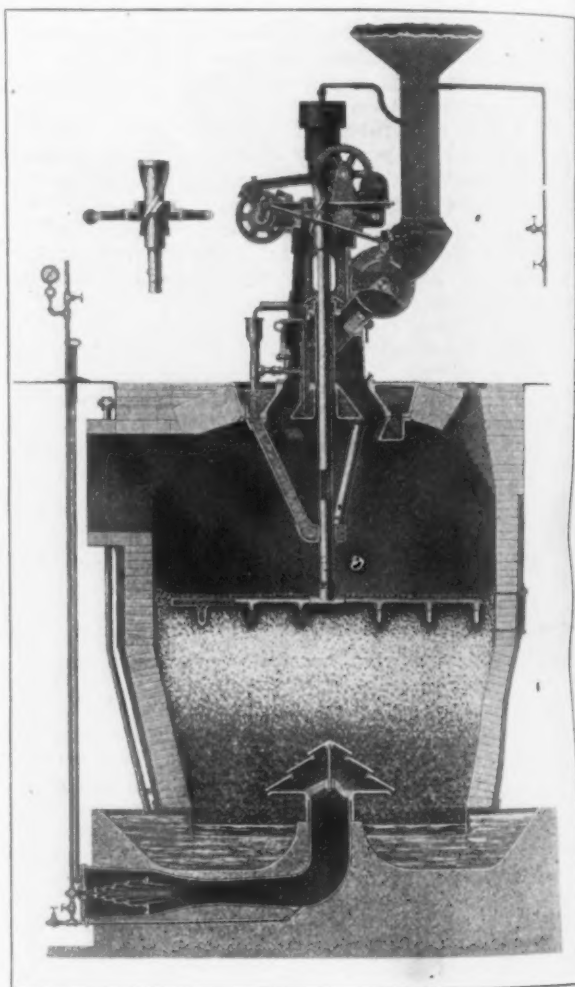
We cannot say that we like this venture any more than some other enterprises that have been undertaken in the so-called interest of British Trade, says the same paper. How the South American buyer will receive an investigator who is subsidized by the British Government remains to be seen, but the new scheme is open to all the familiar objections to the principle of State support, even on a 50 per cent basis, of private and sectional interests.

#### Manganese Ore Imports in August

Imports of manganese ore in August were 33,975 gross tons, as compared with 87,650 tons in August, 1917. The imports in July this year were 29,886 tons. The total for the eight months ended Aug. 31, 1918, has been 308,697 tons, as compared with 457,878 tons for the same eight months in 1917. The monthly average imports thus far in 1918 has been 38,587 tons per month, as compared with 57,234 tons per month in 1917.

#### An Automatic Fuel Feed for Gas Producer

An automatic fuel feeding device has been developed for its gas producer by the Chapman Engineering Co., Mt. Vernon, Ohio. The controlling device consists in a three-chambered rotary drum revolving in a special casing at the lower end of the coal hopper. The drum is driven by a crank and connecting rod attached to a crank on the end of the worm gear driving the agitator, slotted to permit regulation of the rate of coal feed. Maximum drum speed is 1 r.p.m. A saving of coal of usually 25 per cent and of labor of often 50 per cent, together with a 20 per cent increase in the value of the gas through more uniform combustion than is obtainable by hand firing, are among the advantages claimed for this type of installation.



A Three-Chambered Revolving Drum at the Base of the Coal Hopper, Actuated by a Connecting Rod to Motor-driven Agitator Mechanism, Is Employed to Eliminate Hand Firing and Attendant Labor

The coal hopper is kept filled from an open spout connected with the overhead bin. Revolving in the throat of the hopper is a heavy toothed roller, which, it is asserted, prevents the coal from arching or "hanging up" in hopper and crushes the larger pieces. It is stated that this permits the use of any size coal from wet slack to 6-in. lumps. Upon discharge from the feeding drum the fuel slides down a chute and falls upon a cast-steel water-cooled bell upon which are set adjustable deflectors arranged to effect an even distribution over the entire fire bed.

The connecting rod is provided with a safety device which automatically releases the connecting rod in the event of the drum becoming stuck from tar or other cause. A hand screw on the outside of the feeding drum enables the operator to move it slightly endwise and the drum, being built on a slight taper, this adjustment makes it possible to cut down the clearance between it and the casing, thereby reducing leakage of smoke to a minimum.

# Iron and Steel Demand After Peace

## Some Indicated Developments in the United States and Abroad—Shipbuilding, Railroad, Agricultural and Machinery Consumption

A careful analysis of the post-bellum situation as it may affect the iron and steel industry has been prepared for *THE IRON AGE* by an official of a large steel company who has for many years devoted much time and thought to production and sales statistics of the industry. While admitting that the situation which the steel industry now faces is unprecedented in world history, he believes that there are certain well-grounded and easily recognized factors which make the future somewhat easier of analysis than may appear on the face of things.

### Two Periods in the New Era

He first divides the era to follow the war into two parts, one of readjustment and one of reconstruction. The readjustment period, he believes, may last for six months, perhaps longer, while the reconstruction period will continue for two years. To a certain extent one will merge with the other, but readjustments, to a large extent, must precede any definite program for reconstruction.

During the first few months after peace is declared he believes that such reconstruction work as is attempted will be largely of a temporary character, particularly in the war-stricken regions of Europe. Not much of this preliminary reconstruction work will require steel in large quantities. Temporary buildings, frame houses that can be quickly constructed, and wooden bridges instead of steel, will probably be built as rapidly as possible. The future development, in which the use of steel will loom large, will come later, and may not begin for at least a year after the war.

### World Must Go on New Financial Basis

Immediately following the declaration of peace, he believes that a conference of the financial heads of the Allied powers and the United States will be held to place the world on a new financial basis. The financial position of the United States is very sound, but the funding of indebtedness will be required here as well as in England, France, Italy, Russia, and other countries. The small nations of Europe will of necessity be given financial assistance to aid in the rehabilitation of their lands and industries. Closely following upon this financial conference will come arrangements for taxation, which will, of course, vary according to the customs of the countries and their resources.

In France, Belgium, Serbia, and possibly also in Russia, an immediate step will be the temporary rehabilitation of agricultural lands. The world will be clamoring for food, and efforts will undoubtedly be made to reclaim much of the battle-worn land, build new homes for farmers, and provide them with the necessary equipment for farming.

Not until these preliminary necessities have been taken care of will the formal reconstruction programs be inaugurated. Therefore, he sees no immediate large demand from abroad for American steel. Such a demand will come eventually, but in his opinion it will be six months to a year in taking definite form. He says further:

### Effect on Various Iron and Steel Lines

"Meanwhile, the American steel industry will have a readjustment problem at home. For purposes of

clarification, I would divide present activities in the American iron and steel industry into six parts:

- "1. Munitions and other war materials.
- "2. Merchant ships.
- "3. Locomotives, cars, rails and all equipment.
- "4. Passenger automobiles and trucks.
- "5. Agricultural implements and machinery.
- "6. Industrial machinery, including machine tools.

"The coming of peace immediately affects the production of munitions and other strictly war materials. There will undoubtedly be widespread cancellations of orders within a few months. If the peace treaty carries with it disarmament and demobilization of standing armies, except such as are required for police purposes, the need for war materials will soon disappear entirely. A single exception is made in this regard, and that is that those countries which are building war vessels will complete their programs. This will be due to the fact that the United States has a large naval construction program, which probably will not be interrupted, and other nations will keep pace.

### Shipbuilding Requirements Large

"Construction of merchant ships will proceed at a high rate for several years. In 1914 there were approximately 45,000,000 tons of merchant shipping in the world. Through tonnage sunk by submarines, worn out, or otherwise eliminated, there has been a shrinkage in this amounting roughly to about 25,000,000 tons. During the same period about 10,000,000 tons of new ships have been placed in commission, making a net loss during the war period for all nations of about 15,000,000 tons of shipping, and leaving a total tonnage of about 30,000,000 now afloat. It will take about 3,000,000 tons of ships a year to repair wastage and keep pace with the expected increase in world commerce, and, all told, much more than this production will be required, as it is figured that the needs of the world in 1922 will be about 60,000,000 tons of shipping, or 25 per cent more than was afloat in 1914.

"Thus it is argued that, at the rate of ship construction which is now anticipated, it will take at least four years to replace the destroyed and lost tonnage and build enough additional tonnage to provide for the natural growth in commerce. Hence, it is not expected that the use of steel for shipbuilding will be materially affected; in fact, it may increase as steel becomes more plentiful for shipyards abroad that have been operating at a low mark, if at all, during the war. Ocean rates will remain high while the scarcity of shipping space lasts, and such high rates will somewhat affect international trade, as people in various countries will not import at high costs what they can produce at home. There will be employment, however, for any bit of shipping space that is available, and commerce will grow as shipping increases and freight rates grow smaller.

### Railroad Consumption Will Go on

"The railroad program will go on at full speed. Demand for locomotives, cars, rails and related railroad equipment will continue, though of course there will not be a demand for such equipment for military roads. It is anticipated that France will take over



the roads which the United States has built for military purposes in that country, and France's own roads will probably be rebuilt on American lines, as American railroad methods and equipment have been a revelation to that country. The consumption of steel for railroad work of all kinds is expected to continue for some time without diminution.

"The natural, orderly development of the passenger or pleasure automobile has been interfered with by the war, and the wealth of the country has so increased that as soon as buyers have an opportunity to get cars they will undoubtedly buy them. Of motor trucks there may be a surplus for a short while. The motor truck has largely taken the place of the railroads for short hauls, but as soon as the railroad situation gets back to normal many trucks now in use may become idle. The automobile industry as a whole, however, will soon have plenty of business. Farmers, who have developed into a large class of automobile buyers, are more prosperous than ever in history, and may be expected to demand cars soon after peace comes. The automobile industry will probably be one of the first to resume on a normal basis.

#### Agricultural Demand

"Agricultural machinery will also be in large demand, as farmers are prosperous and able to buy improved equipment. The development of the farm tractor, already notable, will undoubtedly increase. In 1918 the production of farm tractors, even under Government restrictions upon the use of steel, reached about 125,000. On Dec. 31, 1917, there were in use in the United States a total of 64,267. At present there are probably 100,000 in use on farms, and the industry is still in its infancy. It is estimated that about 400,000 tons of iron and steel was used in the tractor industry this year, and a larger tonnage will undoubtedly be required next year. The larger use of manure spreaders, gasoline engines and dairy equipment is also a factor which will probably increase the consumption of steel by farm machinery manufacturers.

#### Sheets Needed for Metallic Roofing

"Closely affiliated with the general farming situation is the subject of metallic roofing. For two years there has been very little metallic roofing manufactured except for war purposes. This field is coming back into its own. Sheet mills, which are largely dependent upon other interests for sheet bars, have been running at about 50 to 75 per cent of capacity for some time past, and this has been largely war work. As the Government releases steel the sheet mills will be among the first to bid for it. The sheet mills of the country probably could use about 2,000,000 tons more of steel in a year than they are now getting. The total production of sheets in 1916, according to the American Iron and Steel Institute statistics, was 3,776,596 tons.

#### The Machinery Field

"In the machinery and machine-tool field there is likely to be something of a slump. Machine-tool production during the war period has been away beyond anything ever known before, and it is obvious that such a demand cannot continue, even with the possibility that this country will be called upon for tools in rehabilitating the manufacturing plants of Europe. Some of the smaller machine-tool companies which have sprung into some prominence during the war may be forced out of business by their better-known competitors. There will be thousands of second-hand tools upon the market. Of course, many industrial plants will need some tools in changing from a war to a peace basis of production, but in the aggregate this will not compare with war selling records. A favorable feature of the general machinery situation is that much con-

struction which has been stopped during the war will be resumed. Builders of road machinery, concrete machinery, textile machines, printing presses, and other equipment, which has been classed as more or less unessential for the war, will be able to return to their regular lines, and will undoubtedly be buyers of machine tools, and they will also consume normal quantities, at least, of iron and steel in their own products.

#### Price and Production Problems

"Even though the peace armistices have all been signed, and actual fighting is unquestionably ended, it will be after the first of the year before peace is declared. The Government may continue fixed prices for the first three months of the year, and if peace has positively come by April 1 there will be strong pressure brought to bear on the Government to continue its price-fixing policy throughout the readjustment period. The necessity of maintaining fairly high steel prices will probably be recognized in Washington if manufacturers are to meet the high taxation costs which will be levied after the war.

"A question now frequently raised is, How can the country, even with a large export trade, dispose of its present very large production of steel products? First, I do not believe that the present rate of production will be continued after the war. All steel producers have been working under extreme pressure. When this pressure lets up needed repairs to machinery and plants will take place. Some of the plants which have been started up during the war, and which cannot produce iron and steel economically on a competitive basis, will in all probability be shut down. There has been an increase in the steelmaking and steel-finishing capacity of the country, and the newer and better plants may drive some of the poorer ones out of business. Thus, production of steel will decrease, at least until that time arrives, if it ever does, when prices again go up and the small, uneconomical plants can make money again.

#### Labor

"As to the labor situation, I look to see this work itself out smoothly and by natural laws of supply and demand. With peace at hand, many thousands of men employed in shell plants and other munition shops will soon be out of work. Add to this a small army which has been employed in police duty and other strictly war work, and you will have many men looking for jobs. They will be seeking jobs at a time when industry, perhaps, will be halting and hesitating, and they will drift back naturally into old lines of employment, perhaps not at the same wages they earned before the war, but at any rate for much less than they are making now. The shipyards will work toward more economical production, and wages there may be reduced by Government sanction. Later, as men begin to return from France, the labor market will be still further relieved. No real drastic reduction in wages paid to labor will be possible, however, until costs of living decrease. It will be at least a year before the countries of Europe can produce enough of their own food to bring about lower food prices, and during this year wages will also remain fairly high, and perhaps will never go back to the pre-war basis. However, as wages go down steel will decline also. The steel companies have learned something about co-operation during the war, and I do not look for any ruinous price reductions in the competition for business. Steel prices will go below present levels in many instances, but they will remain much above the price existing before the war.

#### New Export Outlets

"A considerable part of the surplus steel made in this country after war requirements are cut off will undoubtedly go to South America and the Far East.

These nations have been bare of steel for years. Germany's legacy of hatred will go a long way toward preventing her from regaining a strong foothold where she once had almost full sway, and America and

England will doubtless compete for that trade. Much of this export business should come within the next few months, and it will help to stabilize conditions in the iron and steel markets."

## Washington Much at Sea Over Readjustment

WASHINGTON, Nov. 12.—The avalanching swiftness of events which preceded the cessation of hostilities swept official Washington off its feet and gave it little opportunity to work out a calm program of reconstruction and readjustment before Germany had collapsed and the war was over.

The last ten days have been filled with hurried conferences, but not until Monday morning would any one take responsibility for saying "Peace" above a whisper, and even now the details of the reconstruction program are far from settled. The general principles have been hurriedly sketched out. Draft calls have been revoked; contracts are to be canceled, with proper protection to contractors and such safeguards as are possible for the workers who may lose their places; materials, including steel, are to be re-allocated to speed the resumption of peace industries; retrenchment and curtailment orders applying to less essential industries are to be modified and gradually abandoned; price fixing is to be abolished gradually. But just how or where or when or by whom all this is to be done is still the subject of hourly conferring.

### No Power in Boards to Decide

History was written too fast for Washington to keep up with it. Besides, most of the departments and war boards felt that they must wait for the President to take the initiative in determining their troubles, and he has been mighty busy elsewhere. Much also depends upon the industrial and economic situation overseas, and of this we know but little. Even our own situation seems to be a puzzle to most of the men in power at Washington. It is difficult to work out from any information available here now, for instance, just what effect the cancellation of contracts will have upon the wage schedules of the country or the costs of raw and finished products. Every one is hopeful that the readjustment will be gradual and without difficulty. But there are pessimistic observers who particularly draw attention to our unpreparedness.

The situation in the steel industry is typical of the whole industrial field. Observant manufacturers saw the end of the war coming, apparently, long before most of the men here in Washington. For some time they have been trying to find out what would happen when the war guns stopped thundering. But until this week the answer had been "We can't talk peace." Now the answer is "We don't know."

### The Steel Situation Puzzling

From J. Leonard Replogle, chief of the steel section of the War Industries Board, down, there isn't a man in the department who can give these applicants a real solution for their troubles. Chairman Baruch of the War Industries Board knows no more. Before the end of the week they hope that some definite policy can be agreed upon. But so far there are too many participants who have not been heard from. Apparently the only thing that has been determined is that where contracts are canceled by the Government—as they will be by billions of dollars' worth—the Government will reallocate the materials which thus are to be set free so as to speed up an even resumption of peace industries.

But even the principle for this reallocation has not been worked out, although the present War Industries Board machinery will be retained for that purpose. Railroads probably will be given the chief preference,

with shipbuilding second, but beyond that there is nothing to indicate how the new apportionment is to work or how it is to be controlled.

The retrenchments which have been ordered on all consumption of steel probably will be lessened as speedily as possible, but here again nothing is known as to the procedure.

The new course of events has brought a thousand questions in its train. Not the least of these is the question of the continuation of the stimulation of iron and steel production. There may be a market for every pound of iron and steel we can produce; yet there may be marketing difficulties for some of the product which has cost more to produce than peace prices would have warranted, and no one knows what the new peace prices will be.

The foreign market also is a puzzle. Just before the end of the fighting, Great Britain had asked for 600,000 tons of basic iron. At that time there was grave doubt whether we could spare such an enormous total. No answer was given England. Now no one seems to know whether England still wants this, or what price she would be willing to pay for it.

So far the steel section of the War Industries Board has been holding inquirers at bay. Presently these questions will have to be answered, and then there may be a scramble to be the first to get readjusted.

### Relations of Steel Trade to Government

As in all other affected industries, the steel industry will find that the relations to the Government may undergo a decided change as the result of the cessation of hostilities. Already the Government officials are worrying about this feature. Many of the regulations which have been made in the last year were based entirely on the expectation of compliance as war measures. This psychological condition has now been changed. How far manufacturers, or even the public generally, will accept requests as commands or obey commands for which there is no statutory power of enforcement, is on the minds of the officials who must continue to make such requests. It is, of course, too late now to go to Congress to ask for power. That is one of the penalties for the delays in working out a real reconstruction program. Even the men who have been doing the work are getting impatient to go back to their own industries. Most of them made large patriotic sacrifices to do this work. But even if they were willing to continue the sacrifices, many of them are reluctant to take the complaints and criticisms which the let-down of the war barriers will bring. They also do not like to issue orders which they might find themselves powerless to enforce.

### Steel Salvage

Just what salvage there will be in war materials—especially steel—no one knows. The booty we are making Germany give up would make it seem unlikely that more will be manufactured than is needed to round out a day's work at most of the factories. With the exception of ordnance and ammunition that has reached a higher stage of fabrication, much can quickly be reconverted into peaceful use. Instead of the proverbial plowshares, there will be a speedy rolling into rails and building into locomotives and cars. Automobiles and auto trucks can probably be put on the peace market without trouble—but there it is hard to tell

just how far that market will absorb them in the face of the uncertainties of downward wage scales. That is something for economists to work out. The Washington Government knows less about that than the manufacturers.

A few general statements were issued last week by various departments, but all of them held carefully aloof from actual commitment. The first that followed the actual announcement of the signing of the armistice on Monday came from Secretary Baker. It seemed a most comprehensive statement of broad Government policies, although it contained more question marks than definitive statements.

"The readjustment of the labor and industry of the country which has been occupied in war work," said the secretary, "will be undertaken in conference with the Department of Labor and the War Industries Board, with a view to bringing about the readjustment with the least dislocation of labor and the greatest facility possible to be afforded for the re-establishment of industry.

"It is clear that there is work enough in the United States for all the labor in the country. Many Government activities, like the shipbuilding industry, will continue uninterrupted; others will be gradually readjusted. Meantime, those who are employed by the Government or working on the production of Government supplies should continue at their occupations.

"At a meeting this morning, attended by the Secretary of the Navy, the chairman of the Shipping Board and the Secretary of War, it was decided, in view of the signature of the armistice to issue immediate directions to cut out all Sunday work and overtime in Government construction, and in Government owned or controlled plants and plants producing war supplies."

At the same time, Secretary Baker announced that all draft calls had been suspended, and that the men on their way to camps would be turned back wherever possible. No announcement was made at the time, however, of the demobilization program which is to be worked out chiefly between the War and Labor departments. The difficulty will lie in trying to resist the demand for speedy demobilization and the counter-demand that nothing be done to glut a labor market on a declining wage scale prospect.

#### Basis of Canceling Contracts

The same delay was marked in the actual cancellation of war contracts. Chairman Baruch of the War Industries Board, however, made public the following memorandum from Major-Gen. George W. Goethals, Assistant Chief of Staff and Director of Purchase, Storage and Traffic of the War Department, regarding arrangements that have been devised for the termination of war contracts in the public interest where such termination is found necessary:

##### 1. Standard Contract Provisions on "Cancellation and Termination before Completion."

After very careful consideration, the Superior Board of Contract Review approved and the Director of Purchase, Storage and Traffic issued, Supply Circular No. 88, dated Sept. 7, 1918, containing standard contract provisions, in-

cluding provisions on "Cancellation and Termination before Completion."

These provisions cover cancellation for contractor's default, termination in the public interests, assignment of sub-contracts and taking possession of contractor's plant.

Referring particularly to termination in the public interest, Supply Circular No. 88 establishes definitely the payments to be made by the United States in the event of such termination, for articles completely manufactured at the time and for raw materials, articles in process of manufacture and the contractor's outstanding obligation incurred in good faith in connection with the performance of the contract. Provision is also made for payment by the United States to the contractor of a fair amount on account of depreciation or amortization of plants, facilities and equipment provided by the contractor for the performance of his contract.

In return, the United States is released from its obligation to take the remaining articles, not manufactured, specified in the contract and to pay anticipated profits to the contractor on the unfinished portions of the contract.

The contract provisions have been worked out with considerable care to meet the situations presented both by fixed-price contracts and cost-plus contracts. The provisions applicable to fixed-price contracts, are found on pages 5 to 8 inclusive of Supply Circular No. 88 and the provisions applicable to cost-plus contracts are found on pages 17 and 18 of this supply circular.

##### 2. Contracts not Providing for Termination in Public Interest.

A large number of contracts now outstanding do not specifically provide for termination in the public interest. If it becomes necessary to terminate such contracts in the public interest, it is assumed that the parties will generally desire to adjust their rights on the basis of the equitable principles established by the contract provisions contained in Supply Circular No. 88 above referred to.

##### 3. Contracts Providing for Continuing Deliveries.

Supply Circular No. 97 sets forth contract provisions applicable to contracts providing for continuing deliveries including provisions for termination of the contract in the public interest. These provisions apply directly to contracts executed under the provisions of Supply Circular No. 97 and it is assumed that the parties will desire to use them in connection with the termination of analogous contracts providing for continuing deliveries even though they do not contain specific provisions on the subject of termination in the public interest.

##### 4. Board of Contract Adjustment.

In order that questions arising under the contract may be promptly and fairly settled, there has been created a Board of Contract Adjustment.

Supply Circular No. 88 contains on page 12 provisions on "Adjustment of Claims and Disputes" providing, in effect, that any claims, doubts or disputes which may arise under the contract and which are not disposed of by mutual agreement, may be determined by petition of the contractor to the Secretary of War or his duly authorized representative or representatives.

In order to adjust such claims, doubts or disputes as may be thus referred to the Secretary of War and also other claims, doubts or disputes which the contractor may desire to refer directly to the board, a general order has been issued creating the Board of Contract Adjustment and defining its powers and duties. This board will consist of three members having the rank of lieutenant colonel and will conduct hearings, appoint examiners and reach decisions promptly and on principles of equity without the delays and technicalities which frequently attend litigation in the courts.

If a contractor is dissatisfied with the decision of this board, he may appeal to the Secretary of War.

It is assumed that in most instances contractors will be satisfied with the decisions thus rendered and will not find it necessary to avail themselves of their right to resort to the Court of Claims.

## Chairman Baruch's Statement of Policy

WASHINGTON, Nov. 12.—After conferences with President Wilson and with members of the cabinet and other heads of war organizations, Chairman Baruch of the War Industries Board gave out the following official statement on Friday while the armistice negotiations were still pending:

"For some time to come, assuming the armistice will be signed, for a period to be determined by the war-making agencies of the Government, Government contracts must continue on a wide scale. This circumstance applies to a considerable share of present contracts.

"As the demand for raw materials is lessened by the reduction of war requirements and the cancellation of war contracts, if and when such cancellations be made, the raw materials so made available will be released and allocated by the War Industries Board for use in supplying civilian and export demands, which through curtailment have been held in check during the war. In addition to the ordinary commercial requirements, there will be a heavy flow of materials thus released to supply the demand for the great reconstructional work required by the European countries.

"At the same time, there is to be a gradual lifting



of the restrictions and curtailments that have been imposed upon industry by the exigency of the war so as to allow as promptly as possible free flow of all supplies into peace channels.

"The War Industries Board will continue to exercise its functions until the peace treaty is signed, to the end that the readjustment of the matters on which it has been acting may be made in as orderly a manner as possible.

#### Readjustment Committee at Work

"A committee named by the President has been and is now at work to devise the best mechanism of bringing about the adjustments from a war to a peace basis. The report of the committee may take the form of suggested legislation.

"The whole effect of the readjustment plans will be to the end of bringing about necessary changes with as little dislocation as possible and the full opportunity for all to benefit as in the past by individual ingenuity, vision and fair dealing.

"So far it has been our duty to make war," explained Chairman Baruch, in discussing the situation, "and we have done it. I believe we were right in devoting every ounce of our attention to that object. We could not fritter away any of our time or our energy thinking about the possibilities of peace or the problems it would bring with it. Now we must work fast to get ready for it.

"I like the word readjustment better than reconstruction. For it is a matter of trying to readjust ourselves to the normal times of peace. First there comes the problem of the machinery of this readjustment. Most of it can probably be done by the boards and organizations we now have. If there is a need for legislation, we will have to go to Congress for it. In the meantime, the existing boards remain in power until peace is actually signed and that will give us some leeway.

"All the contracting departments of the Government have boards at work studying out the problem of the cancellation of contracts. They cannot cancel these contracts, of course, without making some provisions to protect the contractors as well as the Government. They must take care of the accumulations of raw materials that have been stored. We are ready to help by re-allocating at once the surplus materials that will thus come to light.

"There will have to be a recasting of our priority lists. The war munition industries which have been taking precedence over everything else will have to go to the foot of the class. The railroads and the shipping board will go to the head. It is important that the shipping program should be carried out in full to take care of our shipping needs for the future. But the railroads also demand special attention, for we have held them on short rations and they will need great quantities of steel to make up for that."

"Do you think the Government should continue a

policy of price fixing?" Chairman Baruch was asked.

"I believe that the Government control should go far enough to cover the readjustment period," he replied. "How far we shall have to go with a continuation of the price fixing policy, I do not know. There is a great difference of opinion on that subject. Many well informed observers tell us we can let the whole matter be cared for by the normal application of the laws of supply and demand. Others point out that the readjustment will bring a scrambling for materials that will cause speculative advances in prices against which we should protect the country. That is a matter the future will have to determine. Personally I am in favor of removing all restrictions as quickly as possible in harmony with the military program. So far, we have not received any orders to let up on our war program of retrenchment and curtailment and we will not do so until peace is assured. But even after the armistice is signed, we will continue to function without new legislation, until the peace treaties have been ratified.

"Take the steel situation. The signing of the armistice should cause an immediate relaxation in the tension of demand. We will then have the task of allocating this surplus where it will do the most good from a peace standpoint. I do not know whether there will be any violent fluctuations in prices. That is one of the advantages of the policy we have pursued. Had we permitted everybody to compete in the open market for the available steel, the price might have gone to \$150 a ton. Now there would be a panicky reaction and many of the companies that have made the biggest profits might have lost them all in an overnight slump. As it is, there should be no marked decreases—certainly none that can be dangerous to the industry at large.

#### Learning Many Things

"But we are learning a lot of new things. It is always the fellow who gets into trouble that comes around and wants the Government to help him out. We shall probably have many of them in the readjustment days. They have already been here to ask us to help stabilize prices on the way down—which would indicate that they have gone up too high. They are the same people who told us a month or so ago that without higher prices there could be no production in their lines. From what they told us, you would have thought that they did not have anything on hand. Now they are discovering that they are overstocked and want us to save them from disaster.

"As to the report that we are threatened with the loss of many of our dollar-a-year men, who have been of such great value to this board, I can only say that none of them have yet asked me to be relieved. I hope they do not. I don't believe it will be necessary to appeal to their patriotism to remain, for their work here will be just as important in these days of readjustment as it was in the days of war."

## Board of Contract Adjustment

WASHINGTON, Nov. 12.—The first formal step toward an official and public handling of the after-the-war problem came from the War Department. On Thursday it announced the organization of a Board of Contract Adjustment. The official statement concerning this institution, however, carefully avoided identifying it as a part of the peace machinery of the Government. In fact, few people in Washington seemed to realize that the announcement of this board was actually the first step to be taken to prepare for reconstruction. Yet this is the board which is to handle the great problem of canceled and readjusted contracts. Every branch of the War Department kept up a heavy flood of new contracts to the last minute, just as though there were no end of the war in sight. This, of course, was necessary that there might be no suggestion of weakening in the face of the possibilities of peace with the accompanying danger that a resumption of hostilities would find us unprepared. To do this, however,

it was necessary to be prepared for a general cancellation of contracts. This in turn meant that contractors must have some assurance that they will be treated fairly. The new board is given complete power to deal with such situations. In the event of the cancellation or the change of a contract the board will have complete authority to make such reparation as seems just. Its membership is composed of men who are believed to represent business judgment and who will assure fair treatment to the industries. They will not be at the mercy of the fact that they are dealing with the Government. The creation of the board is intended to take the place of the usual routine of procedure before the Court of Claims and the possible necessity of congressional legislation to secure compensation.

The announcement, which was given out by the War Department, covered the subject in the most general

(Continued on page 1224)

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## A New Day in the Calendar

Nov. 11 passes into history as the world's Independence Day. Whatever other days may be made historic by the formal conclusion of treaties, the date of the ending of the world war marks the beginning of a new era. In all the wild rejoicing that has followed the signing of the armistice, there can be but the faintest appreciation as yet of what this peace means to millions who have only known of government in terms of dumb submission to autocratic authority. Appraisal of that aspect of the momentous events that have been crowded into the week can only come with time. To-day government in Europe is in the making and in what form it will come out of the present chaos is beyond prediction. On all hands is the spontaneous expression that the first business of the United States is to relieve so far as possible the distress of the millions in Europe who are to-day on the verge of starvation.

## The Transition in Steel

The American steel industry has had a large part in saving the world from German domination and the world's estimate of its share will grow as time supplies a story which the public interest has required thus far to go untold. The pledges of the manufacturers given in the beginning have been kept in a way that brings no regrets, as the record of the past 18 months is reviewed. The saving of the world from the iron hand of a mediæval militarism would have been impossible but for American food; but the food supply was made possible only by American ships, and but for American steel the toll of the submarines could not have been made good.

On the western front millions of tons of American steel have been shot from the guns of the Allies, and it is but sober truth to say that but for its incessant battering the German horde would never have been kept from Paris. By sea and on land the American steel industry contributed to the Allied cause the preponderance that eventually brought victory.

The making of peace brings problems of peculiar difficulty to the manufacturers of steel, for no other important industry has so thoroughly devoted its capacity to the requirements of war. As

has been pointed out frequently, the industry has been so completely operated under Government control that the transition to a peace basis is beset with many difficulties unless some measure of Government supervision is continued or legislative authority is given to the manufacturers to co-operate in the readjustment. This latter would be equivalent to the repeal of the Sherman act—a step that is not likely in the present political situation at Washington. In the belief that prices will be lower there are those in the trade who favor a co-operative movement under the lead of the American Iron and Steel Institute, so that the new basis may be reached without demoralization. It cannot be overlooked, however, that from the Washington viewpoint the situation is different from that which led to the virtual abrogation of the Sherman act. The peril of the country when facing a dangerous foe justified measures to which there would not be the same unanimous consent at Washington when the peril had passed.

The present emergency calls for wise counsel and the fullest co-operation between men in authority at Washington on the one hand and the buyers and sellers of steel on the other. If individual advantage is consulted first and foremost, there can be trouble in plenty. Those who act for the Government in deciding cancellations have a heavy responsibility. What they do will determine what many individual buyers will do; what happens to the first brick in the row decides what happens to all the rest. It is a time for caution and restraint and for making no decisive move until the situation has been developed under Washington initiative. The conference already called for Washington this week between the steel manufacturers and the War Industries Board should help to open a way which buyers and sellers can go with a minimum of danger and dislocation.

## Iron and Steel Price Relations

The iron and steel trade has lost no time in addressing itself to the subject of price relations among its commodities. Whatever may be the general average of values, or however prices may be fixed in the transitional period from the war to the peace basis, there will be changes in the relations. The Government price structure under which the industry has been operating was built

up with an eye on the relations that had obtained in normal times, although with some recognition of special conditions that the war had produced. The war's ending does not restore the former conditions, but leaves the industry with new alignments.

Perhaps the most important of the changes in the relations that has occurred is that with respect to pig-iron and steel-making capacity. Blast-furnace capacity is abnormally small, or steel-making capacity is abnormally large. Even before the war some doubt was entertained whether there was sufficient blast-furnace capacity to take care of the increase in steel-making capacity. When large orders for shell steel came from the Allies, the execution of which involved the production of much scrap, there was a disposition to build still more open-hearth furnaces. Then came the entrance of the United States into the war, with a great recasting of industrial effort whereby the consumption of foundry iron was reduced and there was still heavier demand for steel. Despite this contribution, there has not been enough pig iron for the steel works. A common view, therefore, is that for a time at least pig iron will command a higher price, relative to steel prices, than has hitherto obtained. The observation applies to the relative, rather than the absolute, price of pig iron. There may be, and probably will be, a short period of relatively light demand all round, but that may easily affect pig-iron offerings less than steel offerings. Much repairing will have to be done, to put the whole iron and steel industry in good shape again, but blast-furnace repairs will probably require more time than steel works repairs, while some blast furnaces may be disposed to hold their product if they are able to run. It is not yet determined whether there will be an open or a controlled market during the readjustment period, but if there is the latter, the controlling authorities will no doubt recognize the physical conditions existing.

It goes without saying that the vagaries of the scrap market will be eliminated, and that quite promptly. The grades of scrap with much less intrinsic value than heavy melting steel, but limited by the regulations only to the heavy melting steel limit, will probably drop to their natural relation to heavy melting steel, while that in turn will find its relation with pig iron. Buyers of scrap, most of whom have been irritated by the course of affairs in the scrap trade, will force the issue quite promptly and are fully able to do so.

On account of greatly increased labor costs, price relations between finished steel products will be greatly altered. Analyzing the cost of a pound of finished steel into raw material, labor and capital investment employed, the labor percentage has changed greatly with some commodities, such as involve an unusually high proportion of labor, because the cost of labor has so greatly increased. The change of conditions in this respect has been noticed in the case of such steel products as involve a base price and extras above base. As a rule the Government price control has proceeded along the line of setting a base price in relation to conditions generally, and of retaining extras

formerly prevailing. As compared with the pre-war average of ten years, the base price of steel bars, for instance, is fully doubled, whereas the steel bar extras, in cents per hundred pounds, are unchanged. For instance, assuming, which is not far out, that steel bars averaged 1.45 cents base, before the war, a certain size of channels commanded an extra of 0.55 cent, making the net price 2.00 cents. The control price is 2.90 cents, base, or a double price, but the channels referred to would command, not double the former 2.00 cents price, or 4.00 cents, but only 3.45 cents. The additional cost of producing sizes and description of steel that involve extras above base has increased and will hardly return to the former basis. A quarter century ago the seller of wire nails commonly required the buyer to take "a 15-cent average," meaning that his specification had to embrace enough of the sizes taking extras as to bring the average net price above the basis price by that amount. Under the new circumstances the seller might require the buyer to take a certain proportion of base sizes instead.

### An American-German Contrast

This very significant sentence appears in the last official words of Chancellor Maximilian to the German people:

The victory for which many had hoped has not been granted to us. But the German people has won this still greater victory over itself and its belief in the right of might.

It was by the teaching, iterated and reiterated, that might makes right, that the masters of the German people led them to destruction. That satanic doctrine ran through all the military preparations of 40 years and underlay all the commercial propagandism that aimed at domination of foreign markets.

It is interesting to recall that American steel manufacturers were not slow to assert the opposite creed, when they had as their guests seven years ago some of the leaders in the steel industry of Germany, Great Britain and France. In the German delegation in that memorable visit of October, 1911, were a director of the Krupp works, the president of the German Steel Works Union and representatives of several important iron and steel companies. At the dinner given the visitors at Chicago by the members of the American Iron and Steel Institute, Theodore W. Robinson presented to the Institute a striking design for its seal, which has been used in all its publications ever since. Prominently displayed on the seal was the legend, "Right Makes Might," which from that time has become the motto of the associated steel manufacturers of the United States.

This incident of 1911 and the German Chancellor's confession which brings it to mind stand out strikingly as Germany enters upon her term of punishment, and of repentance, let it be hoped. The American spirit and the German spirit, in government as well as in industry, have long been in contrast and opposition, in spite of the surface fraternization that has marked the intercourse of years.



## Preparing for Orderly Demand

Never in its history has the American steel trade operated under such trying and unusual conditions as of late. With the urgency for tonnage various expedients, not recognized as good practice, have been resorted to; and plant facilities have been sadly abused. There has been no time for regular repairs, even if conditions as to supplies of labor and materials had made it possible to make repairs in the ordinary manner. Blast furnaces have been blown out for the patching of linings, when the efficient and economical course in normal times would have been to re-line entirely. Open-hearth furnaces have been pushed far beyond the safe limit for the sake of getting out additional tonnage. Mills and other equipment have been patched in any manner that the ingenuity of the manager could devise.

Already many furnace and mill managers have come to recognize that in the near future there lies a period, more suitable than any other, for putting equipment into good shape again. Orderly repairs have been impossible hitherto, and there is every prospect that eventually, when commercial conditions settle down after the war, there will be a long period of steady demand in which the making of extensive repairs would represent idleness of useful equipment. The time to get ready lies immediately before the trade.

When the period of really active demand comes, the steel industry will probably find itself able to attain rates of output that have hitherto been thought impossible. While the industry has always been more or less ingenious and resourceful, the high pressure period through which it has passed has forced it to do many things it had thought it could not do. A wonderful flexibility has been shown, as to the tonnages produced of certain descriptions of finished steel. As compared with the steel industries of other countries, the American steel industry has been highly specialized, its mills being in the main mills designed for particular purposes, but under unprecedented pressure mills have shown themselves capable of duties far beyond the scope contemplated for them. In the future the steel makers will be ready to accept orders that with their previous knowledge they would have refused.

The demand of the future will be a much more orderly demand than that which the industry has experienced during the period of the war, and preparations are to be made accordingly. Economical production will be sought and habits acquired during the war period, of getting results irrespective of cost, will have to be shaken off.

The steel industry will have to do its repairing and remodeling at higher than average costs. If it waits for low costs it will be waiting also for the period when the tonnage demands upon it will be heaviest. In this regard the experience will be altogether a new one. In all the past the steel industry has made its repairs and improvements chiefly towards the close of a period of depression, when costs were low. In periods of heavy demand it has made extensions rather than improvements. For a few years to come, probably, there will not be much occasion for plant extensions looking to increased tonnage output;

but for putting plants in the best physical condition, and for expenditures looking to reduction in operating costs, the time is now at hand. Wage rates are such that capital expenditures calculated to reduce manual labor are dictated more strongly than ever before.

## OCEAN SHIPPING PREFERENCE

### Applies to East Coast of South America—More Low Phosphorus Iron Ore Coming

WASHINGTON, Nov. 12.—Because of the great shortage of shipping tonnage to the east coast of South America, the War Trade Board, after consultation with the Shipping Committee of the United States Shipping Board, has announced a program for the granting of ocean shipping preference for shipments of any commodity except coal, coke and fuel oil to these ports. To carry out this program the War Trade Board will put preference numbers on the export licenses which it grants. The applications for these licenses are to be made in the usual form with sufficient information concerning the nature and the purpose of the shipment to enable the Board to determine its claim to priority.

The Ocean Shipping Preference on licenses will be honored in accordance with the preference number, No. 1 taking preference over No. 2, No. 2 over No. 3, and No. 3 over No. 4, subject only to the exigencies of prompt loading and satisfactory stowage and cargo. Exporters making shipments under export licenses dated on and after Dec. 1, 1918, must note on the bill of lading the serial number of the export license and the ocean shipping preference number, if any. Carriers in making their manifests must enter the export license number and ocean shipping preference number opposite each entry of goods covered by such export license. Carriers are required to file, immediately after the sailing of the vessel, an extra copy of manifest with the Shipping Control Committee, 45 Broadway, New York.

The War Trade Board also announced that, in addition to the general license PBF No. 14, covering the importation of iron ore from Sweden and Spain when coming as ballast in ships returning from those countries, licenses may be issued for the importation of a maximum total from all sources of 70,000 tons of low phosphorus iron ore from Spain, Sweden, Norway and North Africa, provided the said ore be imported and entered prior to July 1, 1919. By low phosphorus iron ore is meant iron ore which contains in the proportion of not more than 0.12 per cent of phosphorus to 50 per cent of metallic iron. The total amount of low phosphorus iron ore so permitted to come forward will be allocated by the Bureau of Imports.

Another ruling by the War Trade Board announced that import licenses issued before Oct. 1, 1918, which upon their face are valid only for customs entry within 90 days from the date of issuance, will hereafter be honored for entry of shipments made within 90 days from the dates of the licenses, irrespective of the time of entry at the custom house in this country. No change in the licenses now outstanding will be necessary to give them this extended validity.

### Government Corporation for Russian Trade

WASHINGTON, Nov. 8.—To carry out the program of rendering "unselfish economic aid to Russia," as promised by President Wilson, the War Trade Board has now established a corporation to administer certain details in regions and lines of trade not covered by the ordinary channels of trade. Articles of incorporation have been filed for this corporation, which will be known as the War Trade Board of the U. S. Russian Bureau Incorporated. It is to be operated in the interest of the Russian people and its capital is placed at \$5,000,000, the amount of the revolving fund placed at the disposal of the War Trade Board for the purpose of financing the plans and policies of economic assistance to the Russian people.

## BRITISH STEEL COMBINE

## Manufacturers Organize for Co-operation in Trade After War

Two important moves in Great Britain looking to enlarged iron and steel trade after the war are cabled as follows by the London correspondent of THE IRON AGE:

1. The British Steel Corporation has been formed by Baldwins, Ltd., well-known Welsh manufacturer of sheets and tin plates, and the National Metal Chemical Bank, with a capital of £1,000,000, which will be increased to £5,000,000. The Briton Ferry Works, Ltd., Glamorganshire, owner of two blast furnaces, has been acquired, also 350 acres at Swansea for blast furnaces and coke ovens.

2. The National Federation of Iron and Steel Manufacturers is forming to deal with prices, combined selling and after-war legislation affecting the industry.

## Coke Output at Low Point

UNIONTOWN, PA., Nov. 9.—Coke output for the Connellsville regions was 292,500 tons (approximately 50,000 tons below the weekly average) in the week ended Nov. 2. Fuel Administration officials believe this will be the low point touched because of the influenza, which was epidemic throughout the region for three weeks. The current week will show some slight improvement, but present indications are that the week ending Nov. 16 will see a situation fully as bad as that in the worst week of the epidemic, in view of the fact that the ban placed upon saloons at the outbreak of the epidemic was lifted by the health authorities at noon Saturday.

All efforts will be concentrated on increasing the output of by-product coal and of beehive coke. The market seems to have been well supplied with coal used purely for fuel purposes, but coal for by-product ovens continues to be far below requirements and at any number of plants there is no more than a day's run of coal stacked.

During the period of the war the Connellsville region has advanced rapidly to the front as the source for by-product coal. Of the 655,227 tons of coal produced for the week ended Nov. 2, 216,237 tons was shipped to by-product plants. With winter approaching and its anticipated difficulties both in the coke region and on the transportation systems it is the hope of the Fuel Administration to pile a goodly surplus of coal at all by-product plants and of coke at the blast furnaces.

WASHINGTON, Nov. 12.—The reports of the Geological Survey indicate a sensational decrease in the coke output. For the week ending Nov. 2 the production of beehive coke dropped to 558,000 tons, against 593,000 tons in the preceding week. The production of by-product coke in the week ending Nov. 2 was 577,006 tons against 580,672 tons in week ending Oct. 26.

The production of bituminous coal in the week of Nov. 2 showed a similar downward tendency, reaching a low-water mark of 10,965,000 tons, against 11,308,000 tons in the week ending Oct. 26, and 11,516,000 tons in the week ending Oct. 19. All these figures are decidedly below the 12,000,000-ton totals of the September weeks. The deficiency is charged chiefly to the influenza epidemic.

It is reported from Germany that aluminum has been found to be a good substitute for copper for electric transmission lines. In cases where aluminum wires have replaced copper ones there will be no necessity for changing the installation after the war. Owing to the scarcity of aluminum, however, zinc and alloys of zinc have been used as substitutes for copper in many cases. These, it is understood, proved a failure and will have to be changed after the war. Nickel has become very scarce and very little is available for the steel industry.

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## A. S. M. E. Annual Meeting

The annual meeting of the American Society of Mechanical Engineers will be held in New York Dec. 3-6. Papers have been contributed by the sub-committees on textiles, industrial buildings, machine-shop practice and gas power, and include the following:

- "The Measurement of Thread Gages," by H. L. Van Keuren.
- "The Conservation of Heat Losses from Pipes and Boilers," by G. D. Bagley.
- "Industrial Power Problems," by W. F. Uhl.
- "Factory Stairs and Stairways," by G. L. H. Arnold.
- "Properties of Airplane Fabrics," by E. D. Walen.
- "Mechanical Features of the Vertical-Lift Bridge," by H. P. VanCleve.
- "Discussion of Certain Problems in Regard to Marine Diesel Oil Engines," by J. W. Anderson.
- "The Relative Corrosion of Cast Iron, Wrought Iron and Steel Pipe in House Drainage Systems," by W. P. Gerhard.
- "Weights and Measures in Latin America," by F. A. Halsey.
- "Valves and Fittings for High Hydraulic Pressures," by W. W. Gaylord.

In addition to the papers a series of addresses is promised by prominent engineers and Government officials on the broad aspects of management bearing on the general subject of human engineering. Labor developments of the war in connection with shop operations will be brought out in this discussion, to which a day's sessions will be devoted. The program includes also a lecture on the engineering accomplishments of the Navy during the war, and there will be motion pictures of engineering in the war.

A Baltimore court has sustained a demurrer filed by the State Board of Prison Control to a bill of complaint filed by the Jones Hollow Ware Co. The latter sought to prevent convicts from being hired to labor outside the Maryland Penitentiary. The case will be appealed.

## PERSONAL

John Cottman has established an office in room 600, Continental and Commercial Bank Building, 208 South La Salle Street, Chicago, representing the Fitzsimons Co., Youngstown, Ohio; the Cuyahoga Spring Co., Cleveland, and the Racine Screw Works, Racine, Wis. He has had a long experience in the steel trade, having been connected with the American Steel & Wire Co. for eleven years and with the Jones & Laughlin Steel Co. for four years as salesman in the cold-rolled shafting and screw stock department. His field of activity will cover Illinois, Indiana, Wisconsin, Minnesota and Iowa.

John Drewson has resigned as superintendent of the by-product coke plant of the McKinney Steel Co., Cleveland, to take the superintendency of the new by-product plant of the Jones & Laughlin Steel Co., Pittsburgh, which will be placed in operation about March 1. He will assume his new duties Nov. 15 and will be succeeded at the McKinney plant by M. D. Wald, who has been assistant superintendent of the coke plant.

John McConnell, who for several years was general superintendent of the plant of the United Alloy Steel Corporation, Canton, Ohio, and who for the past year has been metallurgical and engineering adviser of that corporation has resigned to become associated with the Interstate Iron & Steel Co., Chicago, and will have charge of the production of that company's alloy steels.

Charles J. Brown has been appointed assistant general superintendent of the Donora works of the American Steel & Wire Co., Donora, Pa., succeeding C. M. Williams, who left Oct. 1 to go to the Balducci works of the Penn Seaboard Steel Corporation at Newcastle, Del. Mr. Brown was superintendent of blast furnaces at Donora. He has been succeeded in that position by C. S. Forkum, who was assistant superintendent of Central furnaces of the American Steel & Wire Co. at Cleveland.

The Celluloid Co., 36 Washington Place, New York, has elected William E. Pulis and Nathan M. Clark vice-presidents.

Prof. Comfort A. Adams, chairman of the committee on electric welding of the Emergency Fleet Corporation and president of the American Institute of Electrical Engineers, on Nov. 7 addressed the members of the Baltimore Section of the Institute and the Engineers' Club. He spoke on "Application of Electric Welding to Shipbuilding."

Walter Sprinkman, assistant production manager Pawling & Harnischfeger Co., Milwaukee, who recently enlisted in the tank corps, U. S. Army, reported for duty Nov. 6 at Fort Raleigh, N. C.

The Bound Brook Oil-less Bearing Co., Bound Brook, N. J., announces the appointment of E. L. Evans as superintendent of its plant No. 1. He was formerly chief inspector of that plant.

J. E. N. Olsen has been appointed local auditor by the Sligo Iron & Steel Co., of Connellsville, Pa. He had been connected with the Republic Iron & Steel Co. since its organization, and for the past four years was local auditor at its Moline works.

Judson T. Whitehead has been elected president of the Machinery & Metal Sales Co., 42 Broadway, New York, succeeding George T. Baird. The appointment has been brought about by action of the War Trade Board.

Howard Emery, who was manager of the Detroit plant of the Aluminum Castings Co. some years ago, and later transferred to the managership of the Manitowoc plant, has returned to the Detroit plant to occupy the position of manager recently vacated by Charles B. Bohn.

George T. Fonda, head of the Bureau of Labor and Safety of the Bethlehem Steel Corporation, Bethlehem, Pa., has resigned.

E. M. Benedict, formerly of Toronto, has been engaged as general manager of the Jackson Munitions Corporation, Jackson Mich.

H. W. Ford, former president Saxon Motor Car Corporation, has been given a commission with the Motor Transport Corps, to be located at Jacksonville, Fla., where he is at present.

Walter McNichol, Scranton, Pa., formerly State Senator and a supervising inspector of the State Department of Labor and Industry, has been appointed chief of the Bureau of Factory Inspection and ex-officio Acting Commissioner of Labor and Industry during the absence of Col. John Price Jackson, in military service. He succeeds L. R. Palmer, Pittsburgh, resigned.

Following the acquisition of the Weatherly Iron & Steel Co., Weatherly, Pa., by the Weatherly Steel Co., the following officers have been elected: Russell Gange were, president; G. H. Bleim, vice-president, and Howard Hoegg, treasurer.

Henry P. Walters, Syracuse, N. Y., recently in charge of the picric acid works of the Semet-Solvay Co., Split Rock, has been selected by the company to take charge of the new picric acid works now being erected for the Government at Grand Rapids, Mich. Raymond E. Fish, general foreman at the local works, has been appointed assistant to Mr. Walters.

Lyman M. Dawes, Trenton, N. J., one of the chief mechanics at the local shops of the Pennsylvania Railroad, has resigned to become plant engineer at the Watervliet Arsenal, Watervliet, N. Y., effective Nov. 1.

Robert L. Ahles, president Sweet's Steel Co., Williamsport, Pa., has enlisted in the American Red Cross for overseas service.

W. P. Hirschberg, chief engineer Federal Engineering Co., Milwaukee, designer and builder of industrial works, has been commissioned a captain in the Engineer Corps, United States Army, and departed Nov. 4 for Washington to assume active duties.

Walter B. Schulte, secretary Burgess Battery Co., Madison, Wis., has been designated by the War Department to go to France to take charge of the technical end of the construction of a new Government plant for the Signal Corps.

Clark W. and Wyman C. Parker have disposed of their interest in the Parker Rust-Proof Co. of America to A. V. Foster, of Spitzer, Rorick & Co., Toledo, Ohio, and Clark W. Parker has resigned as a director.

C. W. Stephens has been appointed manager of sales of the Detroit Twist Drill Co., Detroit, succeeding Nelson J. Smith, who becomes assistant to President Muir B. Snow.

H. H. S. Handy, president Semet-Solvay Co., Syracuse, N. Y., was re-elected at a meeting of the directors Nov. 1. All other officers were also re-elected.

Harry Page, of the bridge and construction department, Bethlehem Steel Co., Steelton, Pa., has been elected chairman of the general committee representing employees in connection with the new representative system for meetings with officials of the company, now placed in force at the works. Charles E. Bates, of the frog shop, has been elected secretary.

Miss Kate Gleason, formerly of the Gleason Works, Rochester, N. Y., has assumed the presidency of the First National Bank of East Rochester in the absence of H. C. Eyer, former president, who has left for Europe to engage in Y. M. C. A. work.

Charles L. Frederick, formerly vice-president and general manager of the Passaic Metal Ware Co., Passaic, N. J., has assumed the duties of general manager of the Thurlow Steel Works, Chester, Pa. Mr. Frederick has recently had his Christian name changed, by order of the court, from Karl to Charles.

J. W. Brussel, until recently supervisor of machining at the Dayton Engineering & Laboratories Co., has accepted the position of superintendent with the Wright-Martin Aircraft Corporation, Long Island City, N. Y.



## OBITUARY

**ALBERT BALLIN**, Hamburg, Germany, general director of the Hamburg-American Steamship Co., and generally recognized before the war as Germany's greatest private citizen, died suddenly Nov. 10, aged 61 years. He was a Jew born in Hamburg, of humble origin, and was a thoroughly self-made man. He went to England as a lad, served a commercial apprenticeship, started his career with the Carr Line and was its passenger agent when his company was absorbed by the Hamburg-American company. One year later, in 1887, Ballin, at the age of 31 years, was placed in charge of the Hamburg-American Line. Under his management the operations of the company rapidly expanded, and in 1914, just before the war, it was the greatest single steamship line in the world, having a fleet of 500 vessels, with a tonnage, built and building, of about 1,500,000, including the two greatest liners in the world, the *Vaterland* and the *Imperator*, and carrying on more than sixty steamship services, making stops at more than 500 ports.

Under Ballin's enterprising leadership Germany forced ahead as a shipping nation until it threatened to rival England, his genius molding the entire industrial and commercial policy of the country. To take care of the business which Ballin brought to Hamburg a policy of physical development of the port and of co-ordination of industries was started. Its harbor development and general development were greater than has ever taken place in any other city in the same space of time. For years before the war commissions were sent from cities all over the world to study the model of harbor building at Hamburg, and the course of peaceful maritime development all over the world received a stimulus from Ballin.

The growth of the German shipping interests was encouraged rather than retarded by the liberal sea policy of Great Britain, but the great sea empire which sprang up as if by magic under the genius of Ballin created visions of a vaster empire still in Germany, and its influence in inducing Germany to make the gamble for world domination was undoubtedly great.

Ballin's attitude toward the war has been reported variously. According to some accounts, he supported the ruthless submarine policy. According to others, he fought against it and was the man who brought about the downfall of von Tirpitz. In Germany he was accused of seeking a compromise "business" peace, a charge which he denied.

His foresight and business acumen were well shown in an intercepted letter written by him to Walter Rathenau in December, 1917, in which he said: "Our people have little or no knowledge of the American character. You and I have made a most careful study of it. What stuff our publicists and journalists write about their Mammon worship, their greed, their envy of other nations, their lack of discipline—Oh, that blessed word discipline! You and I know that the Americans are probably the most idealistic nation on the earth's surface. We know that they would not have entered the lists of our foes had they had any doubt as to the justice of their cause. Nonsense to say they have been influenced by Britain. We are mad not to see where we are and whither we are driving. In antagonizing the United States we have done a disastrous thing, a thing which will throw its cold shadow on our economic life for a generation."

**PAUL E. KRUEGER**, vice-president San Antonio Machine & Supply Co., San Antonio, Tex., died at Roswell, N. M., Nov. 1 from pneumonia following influenza. He was born at Twin Sisters, Tex., Dec. 8, 1878, and was educated at the Blanco High School. Removing to San Antonio, he became connected with the above named company in 1899, serving continuously as vice-president. His death will be deeply regretted by a wide circle of personal and business friends throughout many states.

**JULIAN J. WASHBURN**, vice-president Wiard Plow Co., Batavia, N. Y., died at his home in that city Oct. 28, aged 76 years. He was born on a farm at Randolph, Vt., and served as a private in the Civil War. After the war he was for some years a traveling salesman for the Holbrook Plow Co., Boston, and next was engaged in selling scales for E. & T. Fairbanks, making his headquarters at Newark, N. Y. Removing to Batavia in 1877, he became associated with the Wiard Plow Co., which had been incorporated the previous year. He was a trustee of the company continuously from 1880, secretary from 1880 to 1902, and vice-president from the latter year until his death. On the death of George Wiard, founder of the company, in 1914, he was elected president, but declined the position on account of advancing age. He was president of the village of Batavia in 1886, was a member of the first board of sewer commissioners, and was for many years a member of the Board of Education. He leaves his widow and a son, who is county judge.

**WILLIAM LETTS OLIVER**, pioneer California mining engineer, died Nov. 4, after a brief illness, at his home in Oakland, Cal., aged 74 years. He was born in Valparaiso, Chili, of English parentage, and was educated in Scotland. On his graduation he became government engineer in charge of the nitrate refineries in Chili. He migrated to California in the early sixties, entering the firm of Cross & Co., of which he later became manager. He organized the Tonite Powder Co. and the California Cap Co., and was also one of the principal owners of the Oliver Mfg. Co. and the Donk Gas Engine Co. He leaves his widow, four sons and two daughters.

**A. H. BRAGG**, president Egleston Brothers & Co., New York, iron and steel dealers, died recently. He was born in Hudson, N. Y., in 1856. In 1871 he became a clerk for Egleston Brothers, being admitted to membership in the company with W. F. Proctor in 1899. He has been in control of the company since the latter's death in 1914. He was a member of the New York Athletic Club, New York Machinery Club, Merchants Association of New York and several fraternal organizations. He leaves three sons, all in the service.

**CORPORAL ADOLPHE LOW BUSH**, eldest son of D. Fairfax Bush, senior partner in the firm of Crocker Brothers, was killed in action near Le Catelet Sept. 29. He was a member of Company K, 107th Infantry, and went overseas with his regiment in May last. He was 19 years of age, a veteran of the old 7th Regiment of New York, volunteering his services to his country at the outbreak of the war.

**GEORGE HERBERT WALSH**, for twelve years connected with the sales department of the Alan Wood Iron & Steel Co., Philadelphia office, died from pneumonia at the Naval Hospital, Queenstown, Ireland, Oct. 18, while engaged in Y.M.C.A. war work. He was 35 years of age and unmarried. His body was brought to Philadelphia for interment.

**A. P. EHRBER**, president Duplex Mfg. & Foundry Co., Elyria, Ohio, died Nov. 2 from pneumonia following influenza, aged 57 years. He was formerly connected with the Dunham Co. Berea, Ohio.

**OSBORN W. BROWN**, of the purchasing department of the Marshall Foundry Co., Pittsburgh, and a son of George L. Brown, vice-president of that company, died Nov. 11, aged 23 years.

**JOHN ALBERT SWINDELL**, a prominent furnace engineer, vice-president William Swindell & Bros., Inc., Pittsburgh, died Nov. 9 at his home in that city. He leaves his widow.

**JAMES DOUGLASS**, general furnace foreman at Lucy furnace of Carnegie Steel Co., Pittsburgh, died Nov. 8 at his home in that city. He had been employed by the Carnegie Steel Co. since 1889.

**LIEUT. CLYDE A. TROTTER**, 28 years old, former civil engineer in the employ of the Crucible Steel Co. of America, has been killed in action in France.

**WILLIAM CURRAN SHELLEY**, vice-president and general manager Tiffin Wagon Works Co., Tiffin, Ohio, died Nov. 2, after a long illness, aged 75 years.

## Board of Contract Adjustment

(Continued from page 1217)

terms possible to prevent its being considered as a declaration of the expectancy of an early peace. This announcement, with its statement of the make-up of the board, follows:

### Duties of the Board

"A Board of Contract Adjustment has been constituted by order of the Secretary of War. The functions of this board are to hear and determine all claims, doubts or disputes which may arise under any contract made by the War Department. The board is clothed with all powers necessary and incident to the performance of its duties.

"Through the operation of the Board of Contract Adjustment contractors supplying the army will be able to submit any differences that may arise between them and the contracting officers of the various supply bureaus to this board which will act without any of the technicalities of court procedure, thus insuring a speedy and equitable adjustment. The services of lawyers will not be necessary, as the contractor or his representative may appear before the board and state his case freely and fully with the assurance that he will be

given an impartial hearing and a prompt decision. The decisions of the board will be final and conclusive on all matters submitted to it for determination, but appeals may be made to the Secretary of War.

"The members appointed on the Board of Contract Adjustment by the Secretary of War are Lieut. Col. Christopher B. Garnett, chairman; Lieut. Col. H. H. Lehman and Lieut. Col. Edward S. Malone. Lieut. Col. Garnett was formerly chairman of the Corporation Commission of Virginia, Lieut. Col. Lehman is chief of the Methods Section, Purchase Branch, Purchase, Storage and Traffic Division, and Lieut. Col. Malone was assistant corporation counsel of New York for the Borough of Queens. The legal advisor of the board will be a judge advocate appointed by the Judge Advocate General. The board will also have a recorder and several examiners, who will be commissioned officers of the United States Army and appointed by the Director of the Purchase, Storage and Traffic Division. The office of the Board of Contract Adjustment will be in Washington, but hearings may be held in such other places as may be expedient and necessary for the proper performance of its duties."

## Youngstown Alive to the Situation

YOUNGSTOWN, OHIO, Nov. 12.—(By Wire).—On receipt of the announcement of the signing of the armistice Youngstown steel companies and other industrial establishments quickened plans for readjustment to a peace basis. Sales managers expect the early cancellation of Government contracts for projectile and shell steel now produced in great tonnages in the district. It is expected, however, the Government will continue to be a heavy buyer of plates, sheets, rails and shapes of various kinds.

Joseph G. Butler, Jr., vice-president Brier Hill Steel Co., points out that the railroads have been permitted to substantially deteriorate, and that road bed, motive equipment and rolling stock will require thorough rehabilitation. They will be heavy consumers of steel for several years, he believes.

The sales manager of a Youngstown steel company states that in his opinion it would be folly for the Government to fail to cancel at once all contracts for munitions. He points out that the shell-steel supply is far in excess now of the capacity of machining plants, and declares it would be a waste to continue such production.

With one exception it is expected that Youngstown's steel plants will be able to adjust themselves to a peace basis without drastic changes. Pipe, plates, sheets, rods, wire and shapes of all kinds have been turned out for war requirements, and mills working on such lines will have little readjustment to make. Other plants which have devoted a large percentage of their output to shell steel will have more serious problems to solve. Sheet mills, which have been operating to as low as 50 per cent of capacity, expect substantial orders

from the automobile industry as soon as the first changes take place. Steel leaders are confident that there will be an inordinate demand for the cheaper priced cars. Abolishment of many priority regulations, it is believed, will be one immediate effect of peace.

The Carnegie Steel Co. is preparing to start its fourth mill at the new McDonald works late in the month. Two new open-hearth furnaces will be started at Lowellville Nov. 25 by the Sharon Steel Hoop Co., giving the corporation a battery of six with a daily steel production of about 900 tons. Construction of a second blast furnace and the addition of a by-product coke-oven plant are among the post-war improvements contemplated by the Sharon company, states President Severn P. Ker.

Youngstown district industries look for immediate notification from the British, French and Italian governments that they will exercise substitute clauses in their contracts for munition steel, which provide that, in the event of peace, plates, shapes, rails and other commodities shall be substituted.

Salesmen of Youngstown steel concerns will start out for business from the domestic trade immediately, according to announcement to-day. With the exception of those men called to the service of the Government, the sales forces have remained pretty well intact, and branch offices have been maintained as usual. Salesmen have in most instances kept in close touch with consumers throughout the war and are intimate with their needs. Orders from private consumers will be booked as soon as managers know the attitude of the Government with respect to such business.

## Demobilization and the Labor Problem

WASHINGTON, Nov. 12.—Even more important than the question of contracts, of course, is the War Department's program of demobilization. Secretary Baker, Provost Marshal General Crowder and Chairman Frankfurter of the War Labor Policies Board as the representative of the Department of Labor, have conferred upon this subject. But the details of a definite program are far from complete. It is no easy task to demobilize the enormous army which Uncle Sam has put into uniform. Bringing 2,000,000 men back from Europe is only part of it. As a matter of fact, it seems likely that we will begin to demobilize first on this side of the ocean. Possibly the abolishment of the "work or fight" order will come first. This alone would relieve considerable tension in the labor situa-

tion. It is also possible that there will be a greater leeway in the granting of industrial furloughs. At the same time, plans must be made for the "demobilization" of the enormous army of draft registrants who have not been called.

Just how the men already in camps are to be sent back is something which must be worked out later and with reference to a long list of important questions. The Department of Labor is particularly anxious that the demobilization shall not demoralize wage conditions. The industries, it may be expected, will begin soon to exert pressure to get back their men. It is likely for this reason that some form of preference will be worked out for the release of men for home work which is actually waiting. Men who have no places in pros-

peel and whose appearance by regiments in the "work wanted list" might cause a downward tendency in wages will probably be held back.

There are indications in Washington already that labor leaders—and it must not be forgotten that they have no ear of the Department of Labor—seem to fear that the period of high wages has reached its crest. It is their fear that the laborers who were not able to secure higher wages during the last 18 months are coming too late now to ask for increases. In a number of industries this would account for the im-

patience of the labor leaders over the delay in adjustments by the War Labor Board. It accounts also for the angry indignation of the bituminous mine workers because their demands have not been granted. Whether any of these industries will attempt to force higher wages now by threats of strike in the face of imminent demobilization remains to be seen.

The Provost Marshal General's office has a comprehensive industrial index of the men in the cantonments and overseas, and it is possible that this will figure prominently in the actual program of demobilization.

## Definite Steps to Remove Restrictions on Industry

WASHINGTON, Nov. 12.—After a conference with representatives of the various State councils of defense, the War Industries Board to-day ordered a radical reduction in curtailments of every kind. In most lines this eliminates 50 per cent of the retrenchment previously ordered. The new order removes entirely the requirement for a permit for the following lines of non-war construction:

All projects approved by the facilities division of the War Industries Board.

All farm buildings.

All structures of every kind for the United States Railroad Administration or any transportation, express, telegraph or telephone company.

All street improvements, highways, bridges, parks, playgrounds, public utilities of every kind including street railroads, sewer systems, irrigation and drainage projects, all mine developments and projects for producing and refining mineral oil and natural gas.

All construction for producing, milling, refining, preserving, refrigerating or storing foods and feeds.

All public buildings including schools, churches and hospitals not exceeding \$25,000 in cost.

All other new buildings not exceeding \$10,000 in cost, or not exceeding \$25,000 if approved by a State council of defense, and all buildings begun prior to Sept. 3, 1918. The order removes all limitations on the production and sale of building materials.

In the following industries the order abolishes 50 per cent of all the restrictions that had been ordered:

Agricultural implements and farm operating equipment, including tractors.

Road machinery.

Stoves, ranges, gas heaters and appliances.

Oil, gasoline and electrical heating and cooking devices.

Black, galvanized and enameled ware and tin plate household utensils.

Refrigerators, ice cream freezers, washing machines, clothes wringers, sewing machines, electric vacuum cleaners.

Metal beds, cots, couches, bunks, and metal springs for the same.

Boilers and radiators.

Bicycles, electric fans, builders' hardware, padlocks, step ladders, scales and balances, rat and animal traps, talking machines and needles, watches and clocks.

Hand stamping devices, safes and vaults, lawn mowers, pocket knives, sporting goods, tin plate, passenger automobiles and cash registers.

The order also revokes the requirement that dealers must procure pledges from their customers. The Priorities Division of the board promises to assist industries in procuring materials, fuel, transportation and labor to enable them to increase their operations to normal limits as rapidly as conditions may warrant.

### Conference with Steel Manufacturers

WASHINGTON, Nov. 12.—Peace plans for the iron and steel industry are to be worked out to-morrow at a special conference called by J. Leonard Replogle, chief of the Steel Section of the War Industries Board, with representatives of the American Iron and Steel Institute. Nothing was given out in advance of the program to be discussed, but it is to cover all phases of Government stimulation of output, also the changes made this week in the retrenchments as well as priorities previously ordered.

### Returning Soldiers to Industry

WASHINGTON, Nov. 12.—The demobilization of the Army is to be carried out through the machinery of the Department of Labor, according to a tentative program agreed upon by Chairman Frankfurter of the War Labor Policies Board and War Department officials. Secretaries Baker and Wilson are not in the city and will not pass on this program until Saturday. Demobilization, according to this plan, is to be by industries instead of by military units. A survey of industries is now being made to determine just how fast demobilization can be accomplished without disastrously affecting wage scales.

President Wilson has selected the members for a new National Wage Board to maintain the present wage standard, although the task admittedly will be difficult. The survey taken of 400 of the largest industries in Detroit revealed more than 83 per cent of war work, while a similar survey in Baltimore showed more than 77 per cent.

### Cancellations at Chicago

CHICAGO, Nov. 12.—The Amalgamated Machinery Corporation, Chicago, states that a Government contract for 40 large gun-boring lathes to be delivered to the American repair base in France has been canceled, certain compensation being allowed. The completion of a contract for 186 large shell turning and boring machines which the Amalgamated Machinery Corporation was to make for the Steel Corporation for the Neville Island plant is in doubt. It is reported that the Government would like to have these lathes completed.

A pump order with a Milwaukee company has been canceled.

Local shell-making firms say the situation with them is unchanged and it is believed those on a manufacturing basis will be permitted to continue for a time.

Steel makers are looking for cancellations of finished steel contracts. A maker of semi-steel shells was allocated several thousand tons of pig iron ten days ago, but has not sent a formal order for the iron.

According to *Swedish Export*, British ferromanganese, as used in combination with ferrosilicon, has now been replaced to a very great extent by Swedish ferro-silico-manganese in Sweden. Even if ferromanganese could be manufactured to a considerable extent in the country, it would scarcely be possible to dispense with British ferromanganese with its low percentage of silicon, as the Swedish ferromanganese made in electric furnaces cannot without great difficulty be reduced to the low percentage (less than 2 per cent of silicon) necessary for certain requirements. Nickel and chrome have hitherto been procurable, though, as regards the former, with continuously increasing difficulty. The supply of chrome is also bound to become scarce, there being at present no deposits of this metal known in Sweden.

The Algoma Steel Co., Sault Ste. Marie, Ontario, Can., has arranged an improvement and extension program calling for an expenditure of \$800,000. It is proposed to install a new battery of coke ovens, with other plant extensions.



# Iron and Steel Markets

## THE NEW PRICE BASIS

### Conference at Washington with the Manufacturers

#### Considerable Steel Will Soon Be Available for Industries Hitherto Restricted

The steel trade is confronted with problems of readjustment of prices and uses of steel, greater than any with which it has ever dealt. For the first time in its history it enters on a transition period with Government agencies in practical control of production and distribution. Washington has already announced the partial or entire removal of the restrictions on certain lines of steel consumption, following the actual or the scheduled cancellation of large quantities of "war steel."

Shell steel and barbed wire contracts have been first to feel the making of peace. Other hundreds of thousands of tons of the former will be canceled and the mills should soon be almost entirely through with that product. Some shell steel in the hands of the forgers may have to be diverted to other uses if that is possible.

On the invitation of the War Industries Board the general steel committee of the American Iron and Steel Institute is in Washington to-day to confer on the steps to be taken in getting the industry from practically 100 per cent war basis to a regime in which ordinary peace-time needs will figure largely.

The question of prices is having serious consideration. That they will come down is generally expected, and there is a strong sentiment in the industry for a continuance of conference relations between the War Industries Board and the manufacturers. Whether gradual reductions will stimulate buying is a question, but as there is no disposition either to buy or to sell on a large scale that issue is not pressing.

Official Washington, it is known, has not been friendly to the present level of maintained prices, but they were consented to because it was imperative to bring every ton of productive capacity into action. If they are cut materially, certain high-cost plants might be forced out of operation and their labor thrown idle just as thousands of men are being released from war service. On the other hand, integrated producers could stand considerably lower prices. Under present conditions, the labor readjustment is not likely to come until the liquidation of product has proceeded some distance.

A call from many quarters has gone to Washington for the fixing of minimum prices for the period of transition, but it is pointed out that no legal machinery exists to enforce such stabilizing.

The fact that the country is bare of merchant stocks while those of manufacturers are also in many cases at low point will aid in the start from a new price level. In 1907, when the steel trade co-operated through the Gary dinners, warehouses and manufacturers' floors were loaded with every form of finished iron and steel bought at top prices.

In some lines buyers have already appeared.

Stocks of rivets, screws, nuts and bolts, and kindred supplies need replenishment, and manufacturers in such lines have willingly paid current prices to get material long denied them under the priority regime.

The wire trade has seen some buying of this sort. Now that the need of diverting their ingots and billets to munitions uses is past, wire mills will be in position to supply their ordinary trade, very considerable vacancies on order books being caused by barbed wire cancellations.

It is evident that no small tonnage of bars, plates, shapes, sheets and pipe will soon be available for non-war trade, and that so-called non-essential industries will be able to supply immediate needs.

The cancellation of orders dating back many months is a question with a number of mills. Some of these are around 2c. for bars, for example, and the mills cannot get out whole on present costs. There are also 8c. plates which buyers would like to cancel. So far as these latter contracts were for export, some mills are disposed to insist on their carrying out.

That accumulated export orders would quickly replace war work at the steel mills has been the belief all along, and there is a good sized tonnage waiting, but much of it is business on which the mills could not turn around quickly. Japan is expected to be promptly in the market.

It is interesting in this connection to know that London has already received inquiries from Belgium for steel products. Our London cable also tells of the forming of a new association of British iron and steel manufacturers to deal with prices, combined selling and after-war legislation affecting the industry.

Pig iron scarcity has been more marked than the scarcity of steel and that relative condition is likely to continue, new steel capacity having been added at a much greater rate than new blast furnace capacity. A corresponding difference in price readjustment would be natural.

The machine tool trade is much exercised over efforts of buyers to cancel orders placed without conditions. In some cases discontinuance of Government contracts is the reason; in others plainly the expectation of lower prices is a moving cause. Machine tool manufacturers are resisting these cancellations and point out their serious threat of unsettlement to the metal-working industries.

## Pittsburgh

PITTSBURGH, Nov. 13—(By Wire).

Business was adjourned in Pittsburgh on Monday to celebrate the signing of the armistice by Germany. Work stopped in all of the steel plants excepting where continuous operation was necessary. The men did not wait to be excused, but left their work early in the morning, and many of them did not report at all. To-day iron and steel manufacturers were chiefly engaged in taking stock of the new situation, and determining, when possible, the courses that they will pursue. In many instances, no action of any kind is being taken. The steel companies assume the position that they are still working for the Government and they will continue

## A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics

At date, one week, one month, and one year previous

For Early Delivery

	Nov. 12, 1918	Nov. 6, 1918	Oct. 15, 1918	Nov. 14, 1917
Pig Iron, Per Gross Ton:				
No. 2 N, Philadelphia...	\$39.15	\$39.15	\$38.85	\$34.25
No. 2 Valley furnace...	34.00	34.00	34.00	33.00
No. 2 Southern, Cin'ti...	37.60	37.60	37.60	35.90
No. 2 Birmingham, Ala...	34.00	34.00	34.00	33.00
No. 2 furnace, Chicago*	34.00	34.00	34.00	33.00
Basic, del'd, eastern Pa...	36.90	36.90	36.60	33.75
Basic, Valley furnace...	33.00	33.00	33.00	33.00
Bessemer, Pittsburgh...	36.60	36.60	36.60	37.25
Malleable Bess., Ch'go*	34.50	34.50	34.50	33.50
Malleable Valley...	34.50	34.50	34.50	33.50
Gray forge, Pittsburgh...	34.40	34.40	34.40	32.75
L. S. charcoal, Chicago...	38.85	38.85	38.85	37.50

### Billets, etc., Per Gross Ton:

Basic rails, heavy, at mill	55.00	55.00	55.00	---
O-h rails, heavy, at mill	57.00	57.00	57.00	---
Basic billets, Pittsburgh...	47.50	47.50	47.50	47.50
O-h billets, Pittsburgh...	47.50	47.50	47.50	47.50
O-h sheet bars, P'gh...	51.00	51.00	51.00	51.00
Forging billets, base, P'gh...	60.00	60.00	60.00	60.00
O-h billets, Phila...	51.50	51.50	51.30	---
Wire rods, Pittsburgh...	57.00	57.00	57.00	57.00

### Finished Iron and Steel,

Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia...	3.745	3.745	3.73	3.685
Iron bars, Pittsburgh...	3.50	3.50	3.50	3.50
Iron bars, Chicago...	3.50	3.50	3.50	4.50
Steel bars, Pittsburgh...	2.90	2.90	2.90	2.90
Steel bars, New York...	3.17	3.17	3.145	3.095
Tank plates, Pittsburgh...	3.25	3.25	3.25	3.25
Tank plates, New York...	3.32	3.32	3.495	---
Beams, etc., Pittsburgh...	3.00	3.00	3.00	3.00
Beams, etc., New York...	3.27	3.27	3.245	3.195
Skelp, grooved steel, P'gh...	2.90	2.90	2.90	2.90
Skelp, sheared steel, P'gh...	3.25	3.25	3.25	3.25
Steel hoops, Pittsburgh...	3.50	3.50	3.50	3.50

\*The average switching charge for delivery to foundries in the Chicago district is 50c. per ton.

Sheets, Nails and Wire,	Nov. 12, 1918	Nov. 6, 1918	Oct. 15, 1918	Nov. 14, 1917
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 28, P'gh...	5.00	5.00	5.00	5.00
Sheets, galv., No. 28, P'gh...	6.25	6.25	6.25	6.25
Wire nails, Pittsburgh...	3.50	3.50	3.50	3.50
Cut nails, Pittsburgh...	4.00	4.00	4.00	---
Fence wire, base, P'gh...	3.25	3.25	3.25	3.25
Barb wire, galv., P'gh...	4.35	4.35	4.35	4.35

### Old Material, Per Gross Ton

Carwheels, Chicago...	\$29.00	\$29.00	\$29.00	\$27.75
Carwheels, Philadelphia...	29.00	29.00	29.00	29.00
Heavy steel scrap, P'gh...	29.00	29.00	29.00	29.00
Heavy steel scrap, Phila...	29.00	29.00	29.00	26.00
Heavy steel scrap, Ch'go...	29.00	29.00	29.00	28.00
No. 1 cast, Pittsburgh...	29.00	29.00	29.00	26.00
No. 1 cast, Philadelphia...	29.00	29.00	29.00	30.00
No. 1 cast, Ch'go (net ton)	29.36	29.86	30.36	22.50
No. 1 RR wrot, Phila...	34.00	24.00	34.00	35.00
No. 1 RR wrot, Ch'go (net)	29.86	29.86	30.36	31.00

### Coke, Connellsville,

Per Net Ton at Oven:

Furnace coke, prompt...	\$6.00	\$6.00	\$6.00	\$6.00
Furnace coke, future...	6.00	6.00	6.00	6.00
Foundry coke, prompt...	7.00	7.00	7.00	7.00
Foundry coke, future...	7.00	7.00	7.00	7.00

### Metals,

Per Lb. to Large Buyers:

	Cents	Cents	Cents	Cents
Lake copper, New York...	26.00	26.00	26.00	23.50
Electrolytic copper, N. Y.	26.00	26.00	26.00	23.50
Spelter, St. Louis...	8.40	8.60	8.60	7.75
Spelter, New York...	8.75	8.95	8.95	8.00
Lead, St. Louis...	7.75	7.75	7.75	6.37 1/2
Lead, New York...	8.05	8.05	8.05	6.50
Tin, New York...	75.00	75.00	81.00	73.00
Antimony (Asiatic), N. Y.	9.39	10.50	13.62 1/2	13.75
Tin plate, 100-lb. box, P'gh	\$7.75	\$7.75	\$7.75	\$7.75

to go on as they have been doing until Washington orders otherwise.

Expecting, however, the cancellation of Government contracts, particularly for shell steel, the steel companies are almost without exception now in a receptive mood as to new inquiries. Until the Government alters the present program, it will be impossible for many of the steel companies to quote definite dates of delivery, but in most instances they will book an order and agree to do the best they can. A working down into the B and C priority orders, which have scarcely been touched, will probably be a nearby result of the ending of hostilities.

A comparatively few consumers got in touch with steel companies to-day and urged shipments on old orders. Some consumers took the attitude that civilian requirements now become paramount, and they argue that as their wants have been neglected for so long on account of war work, they should now be promptly taken care of. Although not a single cancellation has been reported to-day, except some unfilled tonnages of pig iron, scrap and ferroalloys, the trade expects cancellations as soon as Washington has a chance to get its bearings. Shell steel orders are expected to be canceled first, and probably the Allies will cancel very soon. Some of the contracts with the Allied Governments provide for the substitution of other forms of steel in place of the shell steel canceled. Some industrial housing developments have been already cut off, but word has been received here from Washington that the War Department has authorized a statement that the building of the proposed ordnance plant on Neville Island would go right on.

Pig Iron.—A sale of 3000 tons of basic iron to a southern Ohio interest for delivery over the remainder of this year is reported. The Government maximum

price was paid. A western Pennsylvania consumer is in the market for 8000 to 10,000 tons of basic for first half. There are a number of other inquiries, including one for about 5000 tons of basic, another for about 1000 tons of foundry iron, and another for about 1000 tons of malleable. In all these inquiries, delivery is wanted over the remainder of this year and first half of next. There have been a few cancellations of unfilled tonnages. One large interest with several plants in the Pittsburgh district has been canceling everything that could be canceled. Pig iron sellers as a rule, however, are objecting to cancellation on the ground that the allocation of iron by the Government excuses them for not making deliveries as promised. In the case of orders allocated by the Government, a consumer who wishes to cancel will be referred to Washington, and sellers will insist that a cancellation order be forwarded to them by the steel section of the War Industries Board. The agitation continues for the fixing of minimum prices for a period of three or six months after peace is declared, and it is stated here that officials in Washington are inclined to give this proposal due consideration when the proper time arrives. Any selling that is done now for next year will be on the basis of the Government prices which will then be in effect. It seems to be accepted as beyond question that the Government will continue price control over the readjustment period. We quote:

Basic pig iron, \$33; Bessemer, \$35.20; gray forge, \$33; No. 2 foundry, \$34; No. 3 foundry, \$33.50, and malleable \$34.50, all per gross ton at Valley furnace, the freight rate for delivery in the Cleveland and Pittsburgh district being \$1.40 per ton.

Billets and Sheet Bars.—A broker expresses the opinion that billets will become available for non-war work within 15 to 30 days. Steel companies, however, can give their customers no definite assurance until

Washington directs some change in the present steel distribution program. A few consumers put in their bid to-day for shipment of billets on old orders as quickly as the mill could do so. They argued that civilian requirements should now be given preference. The sheet bar situation is expected to improve as soon as there is a curtailment of shell steel rolling. It is considered likely that all of the sheet companies will take increased tonnages of sheet bars as soon as they can obtain them. The sheet mills are in a fairly easy position, having several months' orders on their books, which are protected by non-cancelable contracts.

We quote 4 x 4 in. soft Bessemer and open-hearth billets at \$47.50, and bars \$51, forging ingots \$73, and forging billets \$60 base, all f.o.b. at mill, Pittsburgh or Youngstown.

**Ferroalloys.**—Ferromanganese and spiegeleisen are weak, but as there are few sales the market is not being tested. We hear reports of sales of ferromanganese as low as \$240 delivered, but these cannot be confirmed. Sales of 50 per cent ferrosilicon at \$145 have been reported, and it is intimated that even less than this could be done.

We quote 70 per cent ferromanganese at \$250, delivered, and 16 to 18 per cent spiegeleisen, \$75, f.o.b. furnace, an addition or deduction of \$3.50 per unit being made, when the manganese content is above or below the standard. For delivery over the remainder of the year, and for next year, 50 per cent ferrosilicon is quoted at \$145 to \$150.

We quote 9 per cent Bessemer ferrosilicon at \$55; 10 per cent, \$57; 11 per cent, \$60.30; 12 per cent, \$63.60. We quote 6 per cent silvery iron, \$42; 7 per cent, \$43; 8 per cent, \$45.50; 9 per cent, \$47.50; 10 per cent, \$50. Three dollars per gross ton advance for each 1 per cent silicon for 11 per cent and over. All the above prices are f.o.b. maker's furnace, Jackson or New Straitsville, Ohio, these furnaces having a uniform freight rate of \$2.90 per gross ton, for delivery in the Pittsburgh district.

**Structural Material.**—A leading fabricating steel company reports that it has not taken an order of any importance this month. Government work has fallen off sharply. This company is completing two new shell plants, but it is not known whether the Government will stop such work before the buildings are completed. Fabricators do not look for much building inquiry, at least until about the first of the year. With winter weather near at hand, it is now too late to start any building this year even if investors were disposed to build at present high prices. A general resumption of building activity is not looked for before spring. We quote shapes at 3c. base, Pittsburgh mill.

We quote beams and channels up to 15 in. at 3c. at mill, Pittsburgh, for fourth quarter.

**Hot-Rolled Strip Steel.**—Some cancellations of hot-rolled strip steel are expected within the near future, inasmuch as this product has been going largely into the manufacture of war material of various kinds. The resumption of automobile manufacturing will, of course, bring new business.

We quote hot-rolled strip steel at \$3.50 per 100 lb., Pittsburgh, for third quarter, 50c. per 100 lb. additional being charged for special stamping quality.

**Cold-Rolled Strip Steel.**—Production of cold-rolled strip steel has averaged not more than 40 per cent for some time. As soon as steel is released by the Government for non-war purposes, the production of cold-rolled strip steel will undoubtedly be increased if there is sufficient business to justify it.

We quote cold-rolled strip steel at \$6.50 base per 100 lb., f.o.b. Pittsburgh, for 1½-in. and wider, 0.100 in. and thicker, hard temper in coils under 0.20 carbon. Boxing charge 50c. per 100 lb.

**Rails.**—Rail mills have large orders on their books, enough to keep them busy for many months even when 100 per cent production is resumed. Companies making rails expect a heavy export as well as a large domestic demand.

**Plates.**—Until otherwise advised, mills will undoubtedly continue to ship heavily of their production of plates to ship yards and car and locomotive builders. There appears to be no question that these three classes of work will proceed without hindrance and combined they will take a fairly large proportion of the plate output. Makers of plates have been giving thought to the question of filling old contracts. There are still orders on the books for plates at 2c. and below, and some as

high as 10c. A leading producer states that its policy will be to fill its old contracts whether made at low or high prices. Production of plates in October by the Carnegie Steel Co. reached a high mark, coming within about 200 tons of the largest quantity ever rolled in one month. Total output for the month was 125,252 tons as compared with 125,480 tons the high mark established last May.

We quote sheared plates at 3.25c., Pittsburgh mill, for fourth quarter.

**Wrought Pipe.**—The sales departments of companies making pipe predict a continued good demand for both wrought iron and steel pipe. There were no indications to-day as to what the status of the industry will be under peace conditions, but only a small percentage of cancellations is expected. A leading interest making steel pipe has been using a considerable portion of its steel during the war for shell forgings, and it is expected that this business may be cut off soon. Discounts on iron and steel pipe are given on page 1239.

**Boiler Tubes.**—Makers of boiler tubes do not expect any marked change in the situation as a result of the ending of the war. A large percentage of the total production of boiler tubes is going into marine and locomotive boilers, and this work will continue without curtailment. Resumption of normal manufacturing conditions in the automobile industry will create a greatly increased demand for seamless steel tubing. For discounts on boiler tubes see page 1239.

**Bolts, Nuts and Rivets.**—Some cancellations of orders are expected by makers of bolts, nuts and rivets, but such cancellations will not be of great importance because the bulk of the business now on the books is from shipbuilding companies and it has been officially announced that there will be no curtailment in the building of steel ships. Prices are given on page 1239.

**Spikes.**—Makers of spikes are sold up for several months ahead; one maker has orders that will carry him along until next June. Few cancellations are expected, as the bulk of the output is going into boats and railroad work.

Standard sizes of railroad spikes 9/16 x 4½ in. and larger, \$3.90 per 100 lb. in lots of 200 kegs of 200 lb. each, or in larger lots. Boat spikes, \$5.25 per 100 lb.; rack bolts, \$4.90 base in lots of 200 kegs or more; less than 200 keg lots, \$1 per 100 lb. extra. All f.o.b. Pittsburgh.

**Shafting and Screw Stock.**—Nearly all screw stock now being made is for some kind of war work, and the cancellation of war contracts will result in very heavy cancellation of orders for screw stock. The output of shafting has been greatly restricted for some time by scarcity of steel. So the effect of peace is apt to be favorable as regards shafting rather than otherwise.

For fourth quarter we quote cold-rolled shafting at 17 per cent off list in carloads and 12 per cent in less than carloads, f.o.b. Pittsburgh.

**Sheets.**—Makers of sheets received word to-day from a number of automobile manufacturers indicating that the automobile industry will revert to its normal work as soon as conditions permit. It is estimated that the automobile makers have orders for at least 250,000 tons of sheets on the books of the sheet mills, and this tonnage will undoubtedly be shipped. The sheet mills almost without exception have business enough on their books to run them at the present rate of production for four or five months. It is expected that production will increase as soon as sheet bars become available. A better supply of sheet bars will be had as soon as the Government begins canceling orders for shell steel. It is reported that some jobbers have been attempting to cancel contracts for sheets, but the makers assert that no contracts have been canceled, and the ironclad agreement which the sheet manufacturers have been using for the past year and a half is expected to receive its first really severe test in the next few months, particularly if there should be a declining market. Prices of sheets are shown on page 1239.

**Tin Plate and Terne Plate.**—Removal of the restrictions upon the use of tin plate by various industries is expected to come from Washington within the near



future. Tin plate mills are now operating on a 70 per cent basis, and it is expected that after Jan. 1 they will operate again on a 100 per cent basis. Between now and the first of the year, manufacturers of food containers will place contracts for their first half requirements and jobbers will probably cover for first quarter, consumers usually covering their wants for first half of the year in October or November. There has been no disposition up to this time, however, on the part of consumers to make contracts for next year, as they have been waiting the expected ending of the war, any contracts made for tin plate for delivery over the first half of the year will specify that the price shall be that fixed by the Government, as it is fully expected that Government controlled prices will continue at least through the first half of 1919. The manufacture of tin plate has been at a low point for some time past. There has been very little metallic roofing of any kind made during the last year, and a fairly good demand for tin plate is expected by the mills. Production of tin plate will be increased as soon as more steel becomes available. We quote tin plate at \$7.75 per base box for fourth quarter. Prices on tin plate are given on page 1239.

**Wire Rods.**—A better supply of steel for wire mills will soon be available and production is likely to increase if there is sufficient business to require it. In the fully integrated steel plants, an improvement in the output of wire rods will come as soon as the Government indicates that there will be a let-up in the war steel demand. The cutting off of shell steel contracts wholly or in part will work an immediate improvement in wire mill operations. Prices on wire rods are given on page 1239.

**Wire Products.**—The leading wire interest has within the past week sent some of its salesmen out on the road, but it is stated that they will solicit no business until it becomes apparent that the Government is going to release more steel for wire mill operations. Other wire producers will consider inquiries, but in most instances cannot give any definite promises as to deliveries. This situation may change at any moment, however. Word from Washington is being awaited and when that comes, if it is favorable to increased production, as it probably will be, wire companies will be very actively seeking business. Some jobbers are reported to be canceling contracts for unfilled tonnages. The mills will not lose by the cancellation of tentative orders for military barbed wire by the Allied governments. The contracts provided that the mills could substitute other steel products in equal tonnages in the case of cancellation. Prices on wire products are given on page 1239.

**Hoops and Bands.**—The situation in hoops and bands is that production has been at a very low point for some months and demand has also been small, due largely to the almost complete conversion of the automobile manufacturing industry to war work. It is expected that automobile makers will come into the market at once for supplies, and, in fact, some of them are already urging shipment on old orders in anticipation of the resumption of automobile manufacturing on a peace-time basis. We quote 3.50c. for fourth quarter.

**Coke.**—There has been a marked easing up in the foundry coke situation; one seller to-day booked orders for about 25 carloads of foundry coke for prompt delivery. Very little is being done in blast furnace coke, and a number of furnaces have not yet covered their next half year's requirements. The production of coke in the Connellsville region for the week ended Nov. 2 showed the effect of the influenza epidemic. A total of 293,865 tons of coke and 216,237 tons of coal, or a total of 657,034 tons on a coal basis, was the record of the week according to the Connellsville *Courier*. This is the lowest point reached in production during the epidemic. It is believed that the worst stage of the malady has passed, but it will probably be some weeks before the region begins to regain the rate of production which was maintained prior to the outbreak.

We quote 48 hr. beehive blast furnace coke at \$6.72 hr. beehive foundry coke at \$7 and crushed coke over 1/4 in. at \$7.50 all in tons of 2000 lb. at oven. We quote by-product coke at \$5.70 for run of ovens and \$6.70 for selected foundry

in all States but Alabama and Washington. To these base prices should be added the freight rate from the competing beehive coke district which takes the lowest freight rates to the point where such by-product coke is produced, except that there shall be added for coke manufactured in New England 7c. for each 5c. above 60c. in the freight charges per ton (2240 lb.) of coal for water transportation on the coal used in the manufacture of such coke.

**Old Material.**—Trading in scrap has come to a complete standstill. A scrap dealer to-day talked with the purchasing departments of all of the leading scrap consumers in the Pittsburgh district, and not one of them was willing to buy at any price under present conditions. In the absence of any sales, the prices quoted below are purely nominal, it being freely admitted that these prices could not be obtained if anyone was disposed to buy. Some dealers believe that when buying is resumed, it will be on a basis of possibly \$2 to \$6 per ton lower. One effect of the coming of peace has been in the cancellation of unfilled contracts. While prices remained at the full maximum, consumers were willing to accept shipments on contracts which had expired, but with a possibility of a decline in the market, they have asked dealers to wipe these old orders off the books. Some of the canceled contracts called for 1000 tons or more. We quote nominal prices as follows:

Heavy steel melting scrap, Steubenville, Follansbee, Brackenridge, Monessen, Midland and Pittsburgh, delivered	\$29.00
No. 1 cast scrap (for steel plants)	29.00
Re-rolling rails, Newark and Cambridge, Ohio, Cumberland, Md., Franklin, Pa., and Pittsburgh	34.00
Compressed steel scrap	29.00
Bundled sheet scrap, sides and ends, f.o.b. consumers' mills, Pittsburgh district	29.00
Bundled sheet stamping scrap	\$22.00 to 23.00
No. 1 busheling scrap	28.00 to 29.00
Railroad grate bars	28.00 to 29.00
Low phosphorus melting stock (unguaranteed)	34.00
Low phosphorus melting stock (guaranteed)	36.50
Low phosphorus melting stock (bloom and billet ends, heavy plates)	39.00
Iron car axles	46.00 to 46.50
Locomotive axles, steel	46.00 to 46.50
Steel car axles	45.00 to 46.50
Railroad malleable (for malleable works)	34.00
Machine shop turnings	19.00
Cast iron wheels	29.00
Rolled steel wheels	36.00
Sheet bar crop ends (at origin)	35.00
Cast iron borings	19.00
No. 1 railroad wrought scrap	34.00
Heavy steel axle turnings	24.00
Heavy breakable cast scrap	28.00 to 29.00

### Swedish Iron and Steel Output

Swedish output of iron and steel in the first seven months of this year as compared with the same period of 1917 was as follows in metric tons:

	January to Aug. 1, 1917	January to Aug. 1, 1918
Pig iron and direct castings	459,900	477,400
Puddled iron, blooms, etc.	64,300	58,800
Bessemer ingots	39,300	39,700
Open-hearth ingots	267,100	261,300
Rolled and forged iron and steel	265,400	291,500

Crucible and electric steel ingots are not given separately.

Thirty vessels are now on the ways in course of construction at the plant of the New York Shipbuilding Co., Camden, N. J., including the new torpedo fleet of the Government. At the neighboring shipyard of Pusey & Jones, Gloucester City, two vessels are in course of building and it is understood that following their completion no more ships will be constructed at that yard for the present. The working force at the plant will be transferred to the Pennsylvania shipyard adjoining, at which five vessels are now being constructed. A new 5000 horse-power turbo-generator electric power station has been completed to furnish power for the Pusey & Jones plants.

The Wharton Steel Co., Dover, N. J., is planning to place its iron ore mine at Mine Hill, known as the Scrub Oak mine, in full operation before the close of the month.

## Chicago

CHICAGO, Nov. 11—(By Wire).

The iron and steel trade awaits Government action, or at least announcement of its continued support of its present attitude in regard to absorption and prices. Altogether the general sentiment of producers of raw material tends toward optimism. A letter from the War Industries Board indicates that it will adhere to its policies for probably six months. This week the Government has been allocating material for both Administration and French military cars. This includes plates, shapes and bars. It is felt that if shell steel is cut off, no great harm will result if the Government specifies in its place railroad and other material for which it has need. There is little wisdom, it is admitted, in finishing shells if there is to be no need for them. Railroad work even at present prices will prove more economical in the end than putting the steel into shells. At the same time that plans are considered for gradual cessation of war work it is recognized that it is important to disturb industry as little as possible and keep the mass of workers reasonably content. Their mood is one where it would be unfortunate to have them unemployed. To throw too many men on the market at this time would be very serious. An encouraging instance is cited as to latent demand. An oil well concern states that as soon as it can obtain material it will buy, inasmuch as it has accumulated orders representing half a million dollars. All this company is concerned with in respect to prices is that its competitors do not get material cheaper.

A large local steel mill has had men on the road to investigate conditions. They report the country bare of material and that consumers say they will buy as soon as they can be assured of delivery. But few efforts to cancel are reported. Some consumers who have had material on order five or six months and have been able to supply their wants elsewhere have sought to cancel, but these cases are few. One large local mill states it has very few orders on its books running back that far. An ammunition maker in Milwaukee has canceled an order for 2000 lb. of nuts, giving no reason. Generally the bolt and nut industry has received more orders in the past week than in previous weeks and they have all been pressing. Southern pig iron is more easy to procure for 1919. Further recessions in scrap prices are shown.

**Pig Iron.**—The representative of a large Southern producer of merchant iron is taking orders for the first half of 1919 contingent on their acceptance by the maker. Evidently there is a prospect of acceptance, inasmuch as the seller is asking to be advised by his customers as to the quantities and analyses they desire. Another Southern maker continues to accept business for the same period and the Red River Iron Works will dispose of a few thousand tons of silvery. The market is far from being weak despite the end of the war, though the false report of an armistice last week tended to make things quiet. Nevertheless a round tonnage has been sold for next year. The general spirit is one of optimism in regard to the impending future.

The following quotations are for iron delivered at consumers' yards, except those for Northern foundry, malleable and steel-making irons, including low phosphorus, which are f.o.b. furnace, and do not include a switching charge averaging 50c. per ton:

Lake Superior charcoal, Nos. 2 to 5.....	\$38.70 to \$39.00
Lake Superior charcoal, C to AA.....	40.70 to 42.50
Lake Superior charcoal No. 6.....	41.20 to 41.50
Northern coke foundry, No. 1, silicon, 2.25 to 2.75.....	35.25
Northern coke foundry, No. 2, silicon, 1.75 to 2.25.....	34.00
Northern high-phosphorus foundry.....	34.00
Southern coke, No. 1 foundry and No. 1 soft silicon, 2.75 to 3.25.....	42.00
Southern coke, No. 2 foundry, silicon, 2.25 to 2.75.....	40.25
Southern foundry, silicon, 1.75 to 2.25.....	39.00
Malleable, not over 2.25 silicon.....	34.50
Basic.....	33.00
Low phosphorus (copper free).....	54.00
Silvery, 7 per cent.....	50.00

**Plates.**—The Government in the week has allocated material for both French military and Administration cars. If the war demand quickly subsides, there is a huge accumulation of deferred domestic demand which will want this product.

The official mill quotation is 3.25c., Pittsburgh, the freight to Chicago being 27c. per 100 lb. Jobbers who have stock quote 4.52c.

**Structural Material.**—The Government has been calling for more shapes to accompany other material needed for cars.

The official mill quotation is 3c., Pittsburgh, which takes a freight rate of 27c. per 100 lb. for Chicago delivery. Jobbers quote 4.27c. for material out of warehouse.

**Bars.**—Except for the Government car demand, there is nothing to note in mild steel bars. Bar iron makers have been doing well in the past few weeks and feel better now that prices have been readjusted. Rail carbon bars are a little more plentiful, though the supply is still far under normal; one mill is operating this month on old rails, having changed over from discard shell steel.

Mill prices are: Mild steel bars, 2.90c., Pittsburgh, taking a freight rate of 27c. per 100 lb.; discard bars, 3.25c., Chicago; common bar iron, 3.50c., Chicago; refined iron bars 4.25 to 5c.; rail carbon, 3c., Chicago.

Jobbers quote soft steel bars, 4.17c., bar iron, 4.17c. for 4 in. thick and heavier. Reinforcing bars, 4.29½c. base. Under the new price there is no charge for twisting, but extras for sizes are quoted as per card. Shafting, list plus 13 per cent.

**Sheets.**—There is nothing to report except that the mills are regarding the future with expectancy. The regular monthly meeting of the sheet makers will be held in Pittsburgh to-morrow, when the situation will be discussed. For mill prices see finished iron and steel f.o.b. Pittsburgh.

Chicago delivery out of stock regardless of quantity. No. 10 blue annealed, 5.52c.; No. 28 black, 6.52c., and No. 28 galvanized, 7.77c.

**Cast-Iron Pipe.**—Akron's inquiry for 5050 tons comes up for bids Nov. 15. The United States Cast Iron Pipe & Foundry Co. has been awarded 350 tons of 24-in. pipe for the air nitrate plant at Toledo, and 250 tons of pipe for the air nitrate plant at Ancor, Ohio.

We quote per net ton, f.o.b. Chicago, ex-war tax, as follows: Water pipe, 4-in., \$69.80; 6-in. and larger \$66.80; class A and gas pipe, \$1 extra.

**Bolts and Nuts.**—Despite the end of the war having been in sight, makers in the past week have received many Government orders of a pressing character. The Rock Island arsenal has been exceptionally active, as have the makers of locomotives and some others. No efforts to hold up orders have come to light, except in the case of one Milwaukee munitions maker who canceled 2000 lb. of nuts. For mill prices see finished iron and steel, f.o.b. Pittsburgh.

Structural rivets, 5.67c.; boiler rivets, 5.77c.; machine bolts up to ¾ x 4 in., 37½ per cent off; larger sizes 25 and 5 off; carriage bolts up to ¾ x 6 in., 32½ off; larger sizes, 20 off; box pressed nuts, square, tapped, 78c. off; hexagon tapped, 58c. off; coach or lag screws, gimlet points, square heads, 40 per cent off. Quantity extras for nuts are canceled.

**Ferroalloys.**—The quotation for 70 per cent ferromanganese continues at \$250 but there is very little being done and it is believed this price can be shaded. Some 50 per cent ferrosilicon has been sold for the first half at \$150 delivered. Like ferromanganese, spiegel-eisen is weak.

We quote 70 per cent ferromanganese at \$250, delivered 50 per cent ferrosilicon at \$155 to \$162.50, delivered, and 16 to 18 per cent spiegel-eisen at \$75, furnace.

**Wire Products.**—The prospect of more material wherewith to satisfy domestic consumption is causing the sales departments of the wire mills to speed up. Their traveling men are calling on customers and surveying the situation. Where needs are urgent promises are more liberal.

**Old Material.**—Business has been practically at a standstill in the past week, this being especially true since Thursday last, when the false report of an armistice was circulated. To-day there has been a

complete cessation of business, the explanation being "closed on account of victory." Several recessions in prices are announced.

We quote for delivery in buyers' yards, Chicago and vicinity all freight and transfer charges paid, as follows:

Old iron rails.....	\$39.00
Re-rolling rails.....	\$55.00 to 60.00
Old wheels.....	29.00
Old steel rails, re-rolling.....	34.00
Old steel rails, less than 5 ft.....	34.00
Heavy melting steel.....	29.00
Frags, switches and guards, cut apart.....	29.00
Shedding steel.....	29.00
Heavy steel axle turnings.....	24.00

#### Per Net Ton

Iron angles and splice bars.....	\$34.82
Iron arch bars and transoms.....	41.52
Steel angle bars.....	\$29.36 to 30.36
Iron car axles.....	41.52
Steel car axles.....	41.52
No. 1 railroad wrought.....	29.86
No. 2 railroad wrought.....	27.96 to 28.96
Big forge.....	27.96 to 28.96
Pipes and flues.....	24.89 to 25.39
No. 1 busheling.....	26.68 to 27.18
No. 2 busheling.....	19.50
Steel knuckles and couplers.....	30.36
Coil springs.....	30.36
No. 1 cast scrap.....	29.36 to 29.86
Boiler punchings.....	32.59
Locomotive tires, smooth.....	39.00 to 40.00
Machine-shop turnings.....	16.50 to 16.96
Cast borings.....	16.50 to 16.96
Stove plate and light cast scrap.....	24.00 to 24.39
Grate bars.....	24.00 to 24.39
Brake shoes.....	24.50
Railroad malleable.....	29.36 to 30.36
Agricultural malleable.....	28.00 to 29.00
Country mixed scrap.....	20.50 to 21.00

## Buffalo

BUFFALO, Nov. 11.

**Pig Iron.**—No definite or settled opinion as to the immediate effect the cessation of war will have upon the iron market has been arrived at by furnacemen so far as seen to-day and no prognostications are being made. They are celebrating the great event and not making forecasts, as the course of the market will undoubtedly be determined by the attitude of the Government and its decisions as to prices and full completion of war contracts. It is expected there will be some cancellations eventually and possibly some reallocations, but that the Government will carry contracts along for some time to come. Just now prices are, of course, held unchanged and shipments are going forward as usual. We quote the schedule of prices as follows, f.o.b. furnace, Buffalo:

No. 1 foundry, 2.75 to 3.25 silicon.....	\$37.00
No. 2 N, 2.25 to 2.75 silicon.....	35.25
No. 3 foundry, 1.75 to 2.25 silicon.....	34.00
Gray forge.....	33.00
Malleable, silicon not over 2.25.....	34.50
Basic.....	33.00
Bessemer.....	35.20
Lake Superior charcoal, regular grades, f.o.b. Buffalo.....	38.50

**Finished Iron and Steel.**—The future cannot be forecast, but suppliers of steel products are looking for eventual cancellation of military barbed wire and the release of shell steel capacity, so that normal operations will soon be possible on wire and wire products. It is not expected that there will be many cancellations of shipbuilding material, although it is quite possible that there may be a readjustment of orders. Cancellations are being made where yards are furthest behind, or showing least efficiency, and reallocation made to yards that are furthest along, or where good progress in construction is being made and where the greatest efficiency is being shown.

**Old Material.**—Although the market is thrown somewhat "into the air" on account of possible readjustments due to the cessation of hostilities in the world war in Europe and the general belief that there will be a decline in prices in at least some lines of scrap from now on, many dealers believe that the tendency toward depreciation in values will be offset to some extent by the requirements of mills for other than shell and ammunition work, and by the outstanding fact that many consumers of scrap materials have not sufficient stocks on hand to last for more than a month or two for require-

ments that they will be obliged to fill. In addition to this situation, there may soon arise the customary drawbacks to transportation incident to the cold weather season, so that the natural tendency toward a weakening of prices operating from a slackening of demand may be postponed or retarded. So far there is no change in prices or in shipping conditions from the reports of last week.

We continue the price schedule recently current, per gross ton, f.o.b. Buffalo, as follows:

Heavy melting steel.....	\$29.00
No. 1 low phosphorus, heavy, 0.04 and under.....	39.00
Low phosphorus, 0.04 and under.....	36.50
Low phosphorus, not guaranteed.....	34.00
No. 1 railroad wrought.....	34.00
No. 1 railroad machinery cast.....	34.00
Iron axles.....	\$44.00 to 46.00
Steel axles.....	44.00 to 46.00
Carwheels.....	29.00
Railroad malleable.....	34.00
Machine shop turnings.....	18.00 to 18.50
Heavy axle turnings.....	24.00
Clean cast borings.....	18.00 to 19.00
Iron rails.....	36.00 to 37.00
Locomotive grate bars.....	27.50 to 28.00
Stove plate.....	28.50 to 29.00
Wrought pipe.....	27.00 to 28.00
No. 1 busheling scrap.....	29.00 to 30.00
Bundled sheet stamping scrap.....	25.00 to 26.00

## Philadelphia

PHILADELPHIA, Nov. 12.

Philadelphia has been so busy celebrating the signing of the armistice and the ending of the great war, so far as hostilities are concerned, that neither buyers nor sellers have had opportunity to settle down to business and decide upon a definite course of action. It is a period of drifting and waiting, but so far as there is any chance, it seems to be toward a more optimistic sentiment as to the future. While there have been some cancellations, especially of finished materials, nearly all of them can be traced to decisions not to build extensions to shipbuilding plants or munitions works, while a few cancellations have come from companies not engaged in Government work which have had tonnages on hand for about a year, some of them at high prices, and are now canceling merely as a precautionary measure. On the other hand, there are indications that a considerable volume of business may soon be placed. Stove manufacturers and others who have been working under restrictions are already looking forward to a period of greater freedom and are inquiring as to whether they can obtain material without priority orders. Manufacturers are, of course, unable to make any definite reply, as they do not know to what extent Government contracts will be canceled or what the policy prevailing at Washington will be as to continuation of the priority and preference system.

**Finished Iron and Steel.**—Some buyers who have had orders for various kinds of finished materials on their books many months, orders that were entered without any promise as to delivery being made, are canceling. There has also been a continuation of cancellations due to discontinuance of building additions to shipyards, but there certainly is no rush to cancel. The general attitude of manufacturers is to quietly await eventualities. Shipments of plates for a number of boats have been held up and some doubt exists as to the cause, but it seems probable that the kind of construction of numerous boats is to be changed and there will be much readjustment of specifications. We quote plates at 3.49½c.; plain structural material, 3.24½c.; soft steel bars, 3.14½c.; common bar iron, 3.74½c.; refined iron bars, 5.24½c.; No. 10 blue annealed sheets, 4.49½c.; No. 28 black sheets, 5.24½c., and No. 28 galvanized sheets, 6.49½c., all Philadelphia.

**Pig Iron.**—Following the placing of 18,000 tons of basic last week, there has been no other large buying, but some sales have been made of charcoal iron and foundry grades. Sellers who endeavored to obtain orders for delivery the last two months of this year received no encouragement and it is plain that a period of hesitation has set in, but there is nothing like a



panicky feeling and deliveries are going forward with few requests for postponement. It is confidently expected that as soon as the policies dictated at Washington will permit, the placing of orders by non-essential users will be started, but, of course, the question of prices is the one uppermost in the minds of everybody. No one is able to predict what the schedule will be. It is believed, however, that the Government will not relinquish control at an early date. We quote standard grades of iron for delivery in Philadelphia, except low phosphorus grades, for which f.o.b. furnace prices are quoted:

Eastern Pennsylvania No. 1 X.....	\$40.90
Eastern Pennsylvania No. 2 X.....	39.15
Eastern Pennsylvania No. 2 foundry.....	37.90
Virginia No. 2 X.....	41.75
Virginia No. 2 foundry.....	40.50
Basic.....	36.60
Gray forge.....	36.60
Bessemer.....	38.80
Standard low phosphorus (f.o.b. furnace)....	54.00
Low phosphorus (copper bearing, f.o.b. furnace) .....	51.00

**Coke.**—Several furnace companies are in the market for first half requirements, one for 6000 tons per month and another one for 3000 tons. These are belated buyers, as most of the furnaces are covered for their first half requirements. One company which is in the market is a producer of coke, but the product has been so poor that it has been unable to use it and for this reason has been compelled to buy.

**Ferroalloys.**—The market is weak and it is evident that prices could be shaded, but in the absence of actual transactions reported, we continue to quote 70 per cent ferromanganese at \$250 delivered and 16 to 18 per cent spiegeleisen at \$75 f.o.b. furnace.

**Old Material.**—The tendency to soften has become more marked, but for the most part there is a decided disposition not to shade the maximum Government price. The payment of commissions is rapidly disappearing. The only actual reduction in price reported is for forge fire scrap, which has declined from \$29 to \$27.50. While forge fire scrap has not been included in the officially regulated prices, it has generally been considered that \$29 was the maximum for the reason that this material can be used as a substitute for heavy melting steel. Mills almost without exception have stopped buying and dealers are finding it very difficult to dispose of any material. We quote for delivery in Philadelphia and nearby points as follows:

No. 1 heavy melting steel.....	\$29.00
Steel rails, rerolling.....	34.00
No. 1 low phosphorus, heavy, 0.04 and under.....	39.00
Low phosphorus, 0.04 and under.....	36.50
Low phosphorus, 0.06 and under.....	\$32.00 to 34.00
Old iron rails.....	39.00
Old carwheels.....	29.00
No. 1 railroad wrought.....	34.00
No. 1 yard wrought.....	33.00
Country yard wrought.....	29.00
No. 1 forge fire.....	27.50
Bundled skeleton.....	29.00
No. 1 busheling.....	31.00
No. 2 busheling.....	19.00 to 20.00
Turnings (for blast furnace use).....	19.00
Machine-shop turnings (for rolling mill use).....	19.00
Cast borings (for blast furnace use).....	19.00
Cast borings (clean).....	19.00
No. 1 cast (for steel plant use).....	29.00
No. 1 cast (cupola sizes).....	34.00
Grate bars.....	28.00 to 29.00
Stove plate.....	28.00 to 29.00
Railroad malleable (for steel plants).....	29.00
Railroad malleable (for malleable works)....	34.00
Wrought iron and soft steel pipes and tubes (new specifications) .....	33.00
Ungraded pipe.....	29.00

## Birmingham

BIRMINGHAM, ALA., Nov. 11.

**Pig Iron.**—Outstanding features of the Southern iron market are inclination on the part of some consumers to cancel their 1919 quotas, the actual cancellation of some past-due and undelivered orders and hesitancy to place new orders pending readjustment of prices, which some fear and others are inclined to believe will be downward. The tendency noted is not yet widespread, but it has appeared in instances sufficient to show a state of mind. One company, to which

requests for cancellation of allocated iron were made, referred the purchasers to the authorities that had allocated the metal, acting on the principle that the authority which did the allocating was likewise the proper one to consider cancellation. Makers are not so inclined to speculate on the future as consumers, but sit steady in the boat in the confidence that the Government, whose will they have obeyed, will go slowly in any readjustment of prices. No readjustment of Southern iron prices would be fair which would not take into consideration the advanced cost of raw materials superinduced by the higher wages, higher freights and other items making for the increase in cost of production. Allocations the past two weeks in Southern territory have approximated 60,000 tons of foundry metal, some of which has gone to Tennessee furnaces and, it is understood, will come partially out of stocks on hand. Stocks in Alabama are purely nominal except for those of the leading interest, which it is reserving for its own new steel works to come in early in the new year. One large foundry-iron interest has about 8000 tons on yard, another 3000 tons, another 800 tons, and so on. Among the items seeking allocation is 36,000 tons of foundry metal for Italy. Furnace interests are fighting shy of the new allocations, but finally take them according to orders. General expectation is that a lull in trade will be felt shortly after hostilities cease, to be followed by a rush for iron on the part of the non-essential industries such as stove and radiator plants, etc. The period of suspense, it is believed, will be a short one. Prominent producing interests deny having opened books for 1919 delivery, although a fair tonnage has been sold into the first half. Some spot business is done in unallocated iron that develops from daily manufacture. The Talladega Furnace has had to bank several days for lack of raw material. The Republic Iron & Steel Company, for the same reason, is still unable to blow in its third stack. We quote, per gross ton, f.o.b. Birmingham district furnaces, as follows:

No. 2 foundry and soft.....	\$34.00
Basic.....	33.00

**Cast-Iron Pipe.**—There has been little new Government or semi-Government business. The leading interest sees a nearer approach of actual trading, for 50 miles and more of cast-iron pipe for natural gas and oil mains in the Louisiana field and peace conditions ought to bring that to a head. Sanitary pipe shops are looking forward eagerly to resumption of the merchant trade, although how operations may be increased with the restricted supply of labor constitutes quite a problem.

**Coal and Coke.**—Recovery from the epidemic in coal regions is marked by a slight increase in output the past week, showing 15,000 tons to the better, but the production is still far from the record of the week ended July 27, with 433,000 tons. There is just about enough coke to keep down uneasiness. Production has shown some improvement.

**Old Material.**—There is a deadlock in the scrap market owing to apparent inability on either side to make up its mind as to what prices the future shall bring forth, delivery on old orders being the only feature. No. 1 cast has taken a decided drop, largely owing to the apprehension of foundries that war orders will be canceled, for which reason they are unwilling to take on stocks, yet even at reduced prices there is very little business going. We quote, per gross ton, f.o.b. Birmingham district yards, prices to consumers, as follows:

Old steel axles.....	\$37.00 to \$40.00
Old steel rails.....	28.00 to 29.00
Heavy melting steel.....	24.00 to 25.00
No. 1 railroad wrought.....	29.00 to 30.00
No. 1 cast.....	26.00 to 27.00
Carwheels.....	28.00 to 29.00
Tram carwheels.....	26.00 to 27.00
Stove plate.....	21.00 to 23.00
Cast-iron borings.....	16.00 to 17.00
Machine-shop turnings.....	16.00 to 17.00

The American Bridge Co., at Pittsburgh, has completed 100 steel barges for the Carnegie Steel Co., of a total order for 140.

## New York

NEW YORK, Nov. 12.

**Pig Iron.**—Buying of pig iron the past week has not been heavy but it has indicated that some grades are much more easily disposed of than others. One firm which had 1500 tons of charcoal iron for sale did not have the slightest difficulty in selling it. There has been very moderate selling of foundry grades, including Alabama and Virginia. Owing to the unwillingness of some buyers to place orders for Virginia iron on a Birmingham basis of prices, preference is being given by them to the Alabama product. Shipments are going forward very satisfactorily and the signing of the armistice does not seem to have affected the market to any important extent. We quote prices as follows for tidewater delivery for Northern and Southern grades up to Jan. 1, 1919:

No. 1 N. silicon, 2.75 to 3.25.....	\$40.90
No. 2 N. silicon, 2.25 to 2.75.....	39.15
No. 2 plain, silicon, 1.75 to 2.25.....	37.90
No. 2 N. Virginia, silicon, 2.25 to 2.75.....	42.95
No. 1 Southern (all rail).....	43.20
No. 2 Southern (all rail).....	41.70

**Old Material.**—The market is very much weaker and lower prices are recorded in the case of heavy melting steel, borings and turnings and forge fire. Forge fire has declined \$1.50, heavy melting steel \$1 and borings and turnings, 50c., and it is probable that there will be recessions on other grades within a few days. There is, however, a scarcity of stove plate and foundry scrap is being firmly held. There is very little buying and both mills and brokers are canceling when there is any excuse for doing so. Many mills are very well supplied with scrap and will be able to stay out of the market for some time. We quote buying prices of dealers and brokers per gross ton, New York, as follows:

Heavy melting steel.....	\$25.12
Revolving rails.....	30.80
Relaying rails.....	\$60.00 to 70.00
Iron and steel car axles.....	43.40
No. 1 railroad wrought.....	30.90
No. 1 railroad wrought, cut to not less than 10 in. or over 24 in.....	35.90
Wrought-iron track scrap.....	28.80
Forge fire.....	24.50
No. 1 yard wrought, long.....	29.90
Light iron.....	10.00 to 11.00
Cast borings (clean).....	16.35
Machine shop turnings.....	16.35
Mixed borings and turnings.....	16.35
Iron and steel pipe (1 in. minimum diameter), not under 2 ft. long.....	29.90
Stove plate.....	26.12
Locomotive grate bars.....	26.12
Malleable cast (railroad).....	31.12
Old carwheels.....	26.12

Prices which dealers in New York and Brooklyn are quoting in local foundries, per gross ton, are:

No. 1 machinery cast.....	\$34.00
No. 1 heavy cast (columns, buildings, materials, etc.), cupola size.....	34.00
No. 1 heavy cast, not cupola size.....	29.00
No. 1 cast (radiators, cast boilers, etc.).....	29.00

**Cast-Iron Pipe.**—Cast-iron pipe manufacturers are hopeful that municipalities will soon be able to float bond issues so as to place orders for cast-iron pipe that is badly needed. Up to the present time, however, nothing definite in this direction has developed and the market is very quiet. Government prices are \$67.70, New York, for 6-in. and heavier; \$70.70 for 4-in., \$77.70 for 3-in., and \$1 additional for Class A and gas pipe.

**Ferroalloys.**—The conclusion of an armistice has set producers and sellers of manganese alloys to thinking seriously of prices to obtain as more normal conditions rule. A comparison is at once made between present levels and those prevailing before the war. If British ferromanganese, 80 per cent, could be delivered at our seaboard at \$38 per gross ton in 1914, what will be a fair price for domestic alloy made under normal competition? There is no business. Consumers seem well supplied and are not anxious to purchase beyond immediate needs. Quotations are nominal at \$250, delivered, for 70 per cent metal, with 16 per cent spiegel-eisen also nominal, at \$75, furnace, and 18 per cent at \$82. There seems to be no question that these prices

would yield considerably were there any test of the market. Production in October, according to the blast furnace reports of THE IRON AGE, was over 35,000 tons of ferromanganese, a record output for any month, and over 35,000 tons of spiegeleisen, a production second only to the 38,800 tons made in September. Demand for 50 per cent ferrosilicon is very light. We quote \$150 per ton on contract and \$155 to \$160 per ton for spot and nearby delivery.

**Finished Iron and Steel.**—It is too early to gage the effect which the signing of the armistice will have on the cancellation of war contracts in general. It is believed, however, that the transition from war to peace demand will be gradual and under Government control for a considerable period. Thus far little is heard of cancellations. The French Commission in the last week requested a reduction of about 30 per cent in the shipments of barbed wire, but the reason is said to have been port congestion as much as anything else. While it is expected that cancellations of barbed wire contracts will be among the first and also quite general, it is regarded as probable that any contracts for wire rods and other similar material will be continued and the product used on the other side for reconstruction purposes. So far as concerns commercial contracts entered into by foreign countries before this country's entrance into the war, it is the intention of some companies to take a decided stand against cancellations. Very little has been done in structural steel in the past week. Bids were taken yesterday on 2000 tons for an electric shop for the Brooklyn Navy Yard and for about 1300 tons for Government buildings for the Bureau of Yards and Docks at Yorktown, Va. There is some doubt whether this latter, as well as other work outside of that for the Navy, will be allowed to proceed, it being the expectation that naval contracts will not be interfered with. While there have been no orders for railroad cars in the past week, it is expected that some will appear in the near future, especially for foreign roads. Some of the export companies are already approaching steel makers with regard to arrangements for export business. We quote mill shipments as follows: Steel bars, 3.17c.; shapes, 3.27c.; plates, 3.52c.; common bar iron, 3.77c., and refined bar iron, 5.27c., all New York. Out-of-store prices are 1c. higher. These quotations are revised in accordance with the new freight rates to Eastern cities, effective Nov. 1 and published in THE IRON AGE, Oct. 17.

## St. Louis

ST. LOUIS, Nov. 11.

**Pig Iron.**—While peace talk, the armistice hoax and the influenza epidemic have had more or less mental effect on the personnel of the iron and steel trade, both consuming and distributing, there has been no marked new development in the local situation. The allocation of pig iron to consumers continues along the same lines as in the past and the usual amount of odd lots has appeared in the market and been snapped up promptly wherever offered. The uncertainties of the situation as at present viewed have naturally caused some talk as to the future of business, once the war activities are halted, but it is generally accepted that there will be Governmental direction of affairs for a long time and that in consequence there is little to be gained now by speculating as to the future. The sharp ban put upon St. Louis Nov. 9, closing all but vitally essential and war munitions establishments, because of the epidemic, has necessarily interfered with the even flow of business, but plants operating on Government work have not been interfered with and the epidemic has not seriously affected their output as compared with the recent past. It is hoped, however, that the drastic action now in effect will bring about a sharp cessation of new case increase and thus relieve the tense situation.

**Coke.**—No new business has appeared, operations continuing on the basis of existing contracts or continuance of old contracts. Practically every source of supply to this district is sold up for all purposes, metal-

lurgical and domestic, and in consequence the market presents no features for consideration.

**Finished Iron and Steel.**—Business remains on about the same status as at previous reports. War munitions needs are being met satisfactorily, and essential needs of other character are being taken care of with due censorship of the uses to which material is to be put. This material naturally comes out of warehouses, as no new mill contracts are being considered. The warehouses are behind in deliveries and anticipate no improvement in this respect. For stock out of warehouse we quote as follows: Soft steel bars, 4.24c.; iron bars, 4.50c.; structural material, 4.34c.; tank plates, 4.59c.; No. 8 sheets, 5.54c.; No. 10 blue annealed sheets, 5.59c.; No. 28 black sheets, cold rolled, one pass, 6.59c.; No. 28 galvanized sheets, black sheet gage, 7.84c.

**Old Material.**—The scrap market has continued to soften, and there is material change in the quotations as a result of the developing situation. There has been little trading, and the larger dealers have about ceased buying from the smaller dealers who have recently been unloading. The mill demand for steel is still strong and the rolling mills are taking all that is due on contracts, though they are unwilling to make any new contracts in the present state of affairs. Foundry grades are especially soft, with no developments to justify any immediate improvement in tone, at least while the peace talk and armistice negotiations are in the air. There is, in fact, so far as the scrap market is concerned, a very general lack of interest save in the steel items noted. The lists out have been few and small, those appearing during the week including the Wabash, 1400 tons; Missouri, Kansas & Texas, 350 tons; Mobile & Ohio, 750 tons and some minor lots. The Missouri Pacific and the Frisco have been out of the market as offerers of lists for some time, though the Frisco sold about 250 tons of rails last week on informal bidding. Dealers generally do not look for a change in the situation until there is some definite determination of the war and peace talk to give steadiness to the situation. We quote dealers' prices, f.o.b. customers' works St. Louis industrial district, as follows:

*Per Gross Ton*

Old iron rails	\$38.50 to \$39.00
Old steel rails, rerolling	33.50 to 34.00
Old steel rails, less than 3 ft.	31.00 to 31.50
Relaying rails, standard sections, subject to inspection	55.00 to 65.00
Old carwheels	28.50 to 29.00
No. 1 railroad heavy melting steel scrap	28.00 to 28.50
Heavy shoveling steel	27.00 to 27.50
Ordinary shoveling steel	26.50 to 27.00
Frogs, switches and guards, cut apart	28.50 to 29.00
Ordinary bundled sheet scrap	23.50 to 24.00
Heavy axle and tire turnings	20.00 to 20.50

*Per Net Ton*

Iron angle bars	\$33.00 to \$33.50
Steel angle bars	28.50 to 29.00
Iron car axles	40.50 to 41.00
Steel car axles	40.50 to 41.00
Wrought arch bars and transoms	40.00 to 40.50
No. 1 railroad wrought	29.50 to 30.00
No. 2 railroad wrought	28.50 to 29.00
Railroad springs	29.00 to 29.50
Steel couplers and knuckles	29.00 to 29.50
Locomotive tires, 42 in. and over smooth inside	36.50 to 37.00
No. 1 dealers' forge	26.00 to 26.50
Cast iron borings	16.00 to 16.50
No. 1 busheling	25.50 to 26.00
No. 1 boilers cut to sheets and rings	23.00 to 23.50
No. 1 cast scrap	28.00 to 28.50
Stove plate and light cast scrap	21.50 to 22.00
Railroad malleable	27.00 to 27.50
Agricultural malleable	23.00 to 23.50
Pipes and flues	24.00 to 24.50
Heavy railroad sheet and tank scrap	23.00 to 23.50
Railroad grate bars	29.00 to 29.50
Machine shop turnings	16.00 to 16.50
Country mixed scrap	20.50 to 21.00
Uncut railroad mixed scrap	21.50 to 22.00
Horseshoes	27.75 to 28.25

The Cleveland Galvanizing Works, Cleveland, has changed its name to the Chain Products Co. Weldless wire chain forms a large part of its output.

## British Steel Market

### Inquiries Appearing from Belgium—General Conditions Unchanged

(By Cable)

LONDON, ENGLAND, Nov. 13.

There has been no change in fundamental market conditions. Inquiries for iron and steel have begun to arrive from Belgium. Current quotations on various products are as follows:

Tin plate, coke, 14 x 20; 112 sheets, 108 lb., f.o.b. Wales	33s. 6d.
Ferromanganese, £26 10s. for British consumption.	
On other products control prices per gross ton are	
Hematite pig iron, East Coast, £6 2s. 6d., West Coast	£6 7s. 6d.
Cleveland pig iron No. 1, £4 19s.; other grades, £4 15s. 9d. for basic. Domestic prices, 9s. 3d. below these figures.	
Steel plates, ship, bridge and tank, £11 10s. to £17, according to size.	
S. M. boiler plates, basis, £12 10s.	
Bar iron, standard quality, basis £14 15s.; marked £17 net.	
Sheet and tin plate bars, £10 7s. 6d.	
Blooms and billets for rerolling (ordinary), £10 7s. 6d. special quality, £11.	
Wire rods, £21 10s. net, basis.	

## Cleveland

CLEVELAND, Nov. 12—(By Wire).

**Iron Ore.**—The war could not have ended at a more opportune time for the ore industry, as peace has come practically at the time of the ending of the season's business. Ore men are now anxious to know how long Government control of prices will last. They say that unless miners' wages are reduced ore can not be sold much lower next year than at present, and they would like to have some line on next season's prices before starting this winter with the high price of labor to accumulate the stock piles at underground mines for next year's delivery. Lake shipments will be nearly cleaned up next week. Stocks at lower lake docks are large, amounting to 9,909,279 tons, Nov. 1, as compared with 8,823,170 tons on the same date a year ago.

Old range Bessemer, \$6.65; old range non-Bessemer, \$5.90; Mesaba Bessemer, \$6.40; Mesaba non-Bessemer, \$5.75.

**Pig Iron.**—Pig iron producers are now awaiting developments that will follow peace. Most consumers are still operating at undiminished capacity on Government orders and practically no shipments are being held up. Most producers have covered their allocations with contracts, but when Government orders are canceled the consumers are expected to insist on the cancellation of the iron purchased to fill the canceled orders. Sellers generally have not decided what attitude they will take in regard to such cancellations. An easing up in the situation is expected from the falling off in the foreign demand. The first sign of a lessening in the export demand is found in the announcement that the large tonnage of basic iron that England wanted for next year's delivery will not be required. This amounted to about 50,000 tons per month. It had not reached the pig iron committee for distribution when the armistice was signed. With peace restored the pig iron committee continues to allocate iron for the Government and many additional lots, all in small tonnages, have come in for allocation the last day or two. During the week 76,000 tons of iron was allocated for Italy, 40,000 tons of Bessemer and 36,000 tons of foundry, these with allocations made during the previous week filling that country's latest requirements. The committee also allocated last week 26,000 tons of Bessemer iron for France. Total allocations during the week were 164,000 tons, making 1,783,000 tons since May 1. Allocations, including export, were as follows: Bessemer iron, 74,800 tons, of which 38,000 tons was for next year; foundry iron, 66,400, of which 49,000 tons was for the first half; low phosphorus iron, 7400 tons, of which 6500 tons was for next year; malleable iron, 11,000 tons, 4300 tons of which was for next year;



charcoal iron 1900 tons, basic iron 2000 tons and Bessemer ferrosilicon 350 tons. The pig iron committee has so far received no intimation that its services in allocating iron for the Government will be discontinued. Late last week considerable tonnage of Southern iron was sold in this territory in small lots for first half delivery. The price named is the Government price, but should price regulation be removed the last Government price is to prevail. This demand, however, entirely disappeared as soon as the armistice was signed. We quote delivered Cleveland as follows:

Government	\$36.60
Basic	33.40
Southern No. 2 foundry	34.40
Southern No. 2 foundry	39.00
Open hearth	33.40
Open hearth, 8 per cent silicon	49.90
Standard low phosphorus, Valley furnace	53.00

**Old Material.**—One Pittsburgh district mill is cancelling considerable material in this territory and a Cleveland consumer has shut off on borings and turnings for blast furnace purposes causing a weakening in these grades. Busheling has eased off about \$2 a ton. The demand for low phosphorus scrap has disappeared. Mills do not care to buy and dealers will not sell except material they have on hand. Prices are weaker on all grades. One or two consumers are feeling the market, and have advised dealers that they are no longer interested in quotations at the Government maximum. Heavy melting steel brought the \$29 Government price Saturday in sales to dealers who had sold short. No cancellations are reported, but dealers expect with lower prices there will be cancellation of considerable material that has not been delivered according to contracts. In the absence of sales we quote prices at consumers' yards nominally as follows, these quotations being those that prevailed last week, except No. 1 busheling, reduced \$2 per ton:

Per Gross Ton	
Steel rails	\$28.00 to \$29.00
Steel rails, under 3 ft.	34.00
Steel rails, rerolling	34.00
Iron rails	39.00
Iron car axles	46.50
Steel car axles	46.50
Heavy melting steel	29.00
Cast borings	19.00
Iron and steel turnings and drillings	19.00
Compressed sheet scrap	28.00 to 29.00
No. 1 railroad wrought	34.00
Cast-iron carwheels, unbroken	29.00
Cast-iron carwheels, broken	34.00
Agricultural malleable	29.00 to 30.00
Railroad malleable	34.00
Steel axle turnings	24.00
Light bundled sheet scrap	24.50 to 25.00
Cast-iron scrap	29.00
Cast-iron scrap broken to cupola size	34.00
No. 1 busheling	28.00 to 29.00

Per Net Ton	
Railroad grate bars	\$25.00 to \$25.50
Stove plate	25.00 to 25.50

**Finished Iron and Steel.**—Some cancellations and holding up of Government orders are reported and the trade and manufacturers working on Government contracts are anxiously awaiting information as to the extent cancellations will be made. Cleveland mills making shell steel and local plate mills have so far received no cancellation of orders. Government orders held up in this territory include a round tonnage of plates for the United States Shipping Board for converting Lake boats into ocean vessels, 25,000 class B motor trucks, for which at least part of the steel required had been placed and for steel for gun mounts for boats built at Lake shipyards. Although cancellation of the order for the Eagle submarine destroyers, only a few of which have been completed, is considered probable, all the plates for the 100 destroyers ordered have been delivered by a Cleveland mill. Mills look for instructions from Washington within a few days, changing present priority rulings and permitting them to take commercial business. The only products that so far have eased up because of peace are nails and wire. Expecting that they will be able to supply their trade because of cancellations of Government and export business, some of the mills are opening their books

for commercial orders for nails and wire subject to their ability to fill. Apparently because of uncertainty as to the future and as to prices, jobbers and commercial consumers generally are not attempting to place orders for mill products. A Cleveland district mill has been allocated 10,000 tons of blooms for Italy. We quote:

Steel bars, 4.07c.; plates, 4.42c.; structural material, 4.17c.; No. 10 blue annealed sheets, 5.42c.; No. 29 black sheets, 6.42c.; No. 28 galvanized sheets, 7.67c.

**Bolts, Nuts and Rivets.**—The demand for bolts and nuts, both in inquiries and specifications, continue good. Rivet specifications on contracts are heavy and few cancellations are expected.

## Prices of Drills Advanced

CLEVELAND, Nov. 12—(By Wire).

Twist drill manufacturers advanced prices approximately 10 per cent, effective to-day, on a number of types of straight and taper shank carbon drills. Prices on high-speed drills are unchanged.

## Cincinnati

CINCINNATI, Nov. 12.

**Pig Iron.**—The principal topic under discussion concerns what the probable effect of the armistice in Europe will have on the iron market. No one believes that there will be any let-up in the demand for iron, and according to the head of a prominent firm there is apt to be a more urgent call for basic than heretofore. For this reason, furnaces which have been compelled to make basic in place of foundry iron will still be employed in turning out this grade, the consequence being a continued curtailment in the production of foundry iron. Inquiries from all sources have fallen off considerably, although it is too early to predict what effect the recent happenings in Europe will exert. The foundries are melting as much iron as usual and so far none has received any cancellation orders for castings. There is an urgent demand for malleable castings from manufacturers of agricultural implements. Shipments of malleable are moving more promptly, but the supply has not yet been augmented to any considerable extent and it will probably be as scarce as basic. Several first-half contracts for foundry iron were signed last week, but to-day's mail brings in very few inquiries for that shipment. The general belief is that melters will hold off until more settled conditions exist before placing further orders for future shipment. The demand for high silicon has declined lately. Production of high silicon iron in the South has on the other hand shown a considerable increase.

Based on freight rates of \$3.60 from Birmingham and \$1.80 from Ironton, we quote, f.o.b. Cincinnati:

Southern coke, No. 2 foundry and No. 2 soft	\$37.60
Southern Ohio, No. 2	35.80
Basic, Northern	34.80

**Finished Material.**—Mill agencies report no cancellations of importance. On the other hand, since peace reports have become prevalent, some orders have been received for iron bars to take the place of steel bars not now obtainable. Confirmation of the armistice in Europe has not yet had any effect on the market. The general belief is that no sudden cessation in war work will take place and that there will be a gradual let-down in activities to enable manufacturers to switch over to other work. Mill promises that the barbed wire shortage will be relieved before the beginning of the spring season of next year are not definite enough to ease up the situation to any extent. Wire nails are scarce and no stocks are held by either the jobbers or retailers. There is no call for structural material from any source.

The following are local jobbers' prices: Steel bars and small structural shapes, 4.13c. base; large rounds and squares 2 in. and over, 4.23c. base; plates, 4.48c. base; No. 10 blue annealed sheets, 5.48c.; steel bands, 3/16 in. and lighter, 4.98c. base (using the new band list). Reinforcing concrete bars, 4.25½c., and wire nails, \$4.23 per keg base.

**Coke.**—Contracting has been cut off entirely. Neither furnace nor foundry consumers are at all willing to look

very far ahead. However, many furnaces and foundries have all the coke bought that they will need for the first half of next year. Consumers of coke who have been depending entirely on the Government for a future supply because they are engaged on war work may now be more inclined to seek a supply of fuel for further requirements. The influenza epidemic is passing so rapidly that it can now be counted on as only a very small factor in retarding production in all different fields. The labor problem is also one that is fast nearing solution and if present indications may be taken as a guide, the labor shortage will not be one of long duration.

**Old Material.**—There is practically no market for any kind of scrap. Transactions are so few and far between that no stable market prices can be named. However, it may be said that both buying and selling quotations are only nominal. The present dull period surpasses all previous records at this season of the year. No activity is looked for until business conditions are more stable. The following are buying market prices, f.o.b. cars Cincinnati and southern Ohio, in car-load lots:

Per Gross Ton	
Bundled sheet scrap.....	\$21.50 to \$22.50
Old iron rails.....	33.50 to 34.00
Relaying rails, 50 lb. and up.....	44.50 to 45.00
Re-rolling steel rails.....	31.00 to 32.00
Heavy melting steel scrap.....	27.50 to 28.00
Steel rails for melting.....	27.50 to 28.00
Old carwheels.....	27.50 to 28.00
Per Net Ton	
No. 1 railroad wrought.....	\$29.00 to \$29.50
Cast borings.....	12.50 to 13.00
Steel turnings.....	13.00 to 13.50
Railroad cast.....	25.00 to 25.50
No. 1 machinery.....	28.00 to 28.50
Burnt scrap.....	19.50 to 20.00
Iron axles.....	40.00 to 40.50
Locomotive tires (smooth inside).....	35.50 to 36.00
Pipes and flues.....	21.00 to 21.50
Malleable cast.....	24.50 to 25.00
Railroad tank and sheet.....	20.00 to 20.50

### India Renders Industrial Aid in the War

WASHINGTON, Nov. 12.—A special report has been prepared by the Far Eastern division of the Bureau of Foreign and Domestic Commerce on the important part played by the Indian Munitions Board created in April, 1917, to utilize to the utmost the resources of India for the prosecution of the war. One of its most important duties has been providing supplies of railroad materials, particularly for the Mesopotamia expedition. This was put in charge of the overseas military and railroad section, which immediately levied upon the Tata Iron & Steel Works so as to have a first call on its output. The next step was to standardize its products. To maintain uniform rolling stock for oversea military purposes only, one or two Indian railroads are drawn upon and these requisitions are recouped from other lines in order to maintain the balance of proportionate supply.

The Indian water-transport section has undertaken shipbuilding—both completely from Indian materials at Calcutta and from plates and angles sent out from England. A number of steel barges and of composite steel and wood barges of standard lengths have been constructed in Calcutta and then knocked down for re-erection after being transported to the western side of India at Karachi. The Karachi Port Trust donated a site and within six weeks a complete village, accommodating 1000 men, had been erected. At the outset 19 days were required for the re-erection of a barge, but the work is now being carried on at the rate of one a day to a day and a half. Another important branch of the arrangements for the work was the supply of motor boats and steam pinnaces by English firms, several fine motor hospital ships being re-erected after construction in England.

The American Water Heater Company, 1106 North Sixth Street, St. Louis, manufacturer of gas water heaters, has filed a voluntary application in bankruptcy. Liabilities are listed at \$36,000 and assets at \$71,000.

## IRON AND INDUSTRIAL STOCKS

### General Strength in Securities, but Some Tendency to Lower Prices on Steel Stocks

The most momentous event in all history, the humble acceptance by Germany of the drastic terms imposed by the Allies as an imperative preliminary to her desired armistice, was so clearly foreshadowed for several days that the market for securities felt its influence. Dealings in bonds were larger, with prices advancing, and railroad stocks were more active and generally higher. Stocks of steel and equipment companies, however, displayed a tendency to sag, as the cessation of hostilities would undoubtedly cause a diminution of the demand for war steel and munitions. The stock exchanges were closed on Monday to enable the members to celebrate the signing of the armistice.

The range of prices on active iron and industrial stock from Tuesday of last week to Wednesday of this week was as follows:

Allis-Chalm. com. 26½-29	Lake Supr. Corp. 16½-18
Allis-Chalm. pf. 80-84½	Lima Loco. 42-46
Am. Can. com. 45¼-48	Midvale Steel 43¼-46
Am. Can. pf. 94¼-97½	Nat.-Acme 30¼-31½
Am. Car & F. c. 83¾-86¾	N. Enam. & St. c. 43¼-45
Am. Car & F. pf. 111	N. Y. Air Brake 101¼-107
Am. Loco. com. 64-68¾	Nova Scotia Steel 62¼-62½
Am. Loco. pf. 99¾-100½	Pittsburg Steel pf. 94
Am. Steel Fdries. 85¼-90½	Pressed Steel c. 67¼-69¼
Bald. Loco. com. 77¾-88½	Pressed Steel pf. 98-99¼
Bald. Loco. pf. 102¼-103	Ry. Steel Spg. c. 67¼-69¼
Beth. Steel com. 60¾-65¼	Ry. Steel Spg. pf. 102-102½
Beth. Stl. Cl. B. 59¾-64¾	Republic com. 77¼-82¼
Case (J. I.) pf. 56	Republic pf. 99½-99¾
Cent. Fdry. com. 33-34	Sloss-Shef. com. 52
Chic. Pneu. Tool. 65-66	Superior Steel 35-37½
Colo. Fuel 39-41	United Alloy Stl 37¼-40
Cruc. Steel com. 53½-57	U. S. Pipe com. 15-15¼
Crucible Steel pf. 88-88¾	U. S. Pipe pf. 45
Deere & Co. pf. 96	U. S. Steel com. 99¼-104¼
Gen. Electric 153-157	U. S. Steel pf. 111¼-112¼
Gt. No. Ore Cert. 31¾-32¾	Va. I. C. & Coke 68-69
Gulf States St'l. c. 65-66	Warwick 8¼
Int. Har. new. c. 110-121	Westingh. Elec. 44¼-45¼
Lackaw. Steel 72-73	

### Dividends

American Radiator Co., quarterly, 3 per cent on the common, payable Dec. 31, and 1¼ per cent on the preferred, payable Nov. 15.

The Lima Locomotive Works, Inc., 3½ per cent on the preferred, payable Nov. 11.

The Niles-Bement-Pond Co., quarterly, 3 per cent on the common, payable Dec. 20.

The Pratt & Whitney Co., quarterly, 1½ per cent on the preferred, payable Nov. 20.

The Studebaker Corporation, quarterly, 1 per cent on the common and 1¼ per cent on the preferred, payable Dec. 2.

### Decisions of National War Labor Board

WASHINGTON, Nov. 12.—The National War Labor Board has refused to fix a minimum wage rate of 60c. per hr. for the common labor employed by the Commonwealth Steel Co. of Granite City, Ill. The board, however, approved a 40c. per hr. award which had been made by Major William C. Rogers of the Ordnance Department.

The laborers employed by the Commonwealth company also demanded the recognition of their union. This had been refused by Major Rogers.

In a report of its activities since its organization last April, the National War Labor Board says it has made awards and otherwise disposed of 358 industrial disputes between employers and employees in war industries and industries directly essential to war production. On Nov. 1 there were 315 cases awaiting settlement.

Net profits of the Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N. S., after allowing for fixed charges, but before appropriations for taxes and depreciation, amounted to \$2,743,125 for the nine months ended Sept. 30. This compares with \$2,315,591 for the full year of 1917, with interest charges allowed, but no depreciation and taxes. That is, the company's net was \$400,000 larger in nine months of 1918 than in the twelve months of 1917, and would seem to indicate a full year's profits of \$3,600,000.

## CHANGES IN PRICE LIST

New Differentials on Bessemer Ferrosilicon—  
Other Details

The following statement was given out this week in New York by Chairman E. H. Gary of the Committee on Steel and Steel Products of the American Iron and Steel Institute:

The Committee on Steel and Steel Products has received from a sub-committee reports based on information received from representative manufacturers of various lines of steel and steel products, and from such reports and other data available the committee has concluded that certain additions to and changes and modifications in the differentials and extras, etc., as heretofore recommended by the Institute are fair and reasonable and the committee recommends that such revised differentials and extras be adopted.

To the differentials for Bessemer ferrosilicon recommended under date of Sept. 26, 1918, add the following:

## Pig Iron

## Bessemer Ferrosilicon

12 per cent silicon.....	\$37.00	per gross ton above base
14 per cent silicon.....	45.00	per gross ton above base
15 per cent silicon.....	51.00	per gross ton above base
16 per cent silicon.....	54.00	per gross ton above base
17 per cent silicon.....	57.00	per gross ton above base
18 per cent silicon.....	60.00	per gross ton above base
19 per cent silicon.....	63.00	per gross ton above base
20 per cent silicon.....	66.00	per gross ton above base

The above differentials apply to ferrosilicon whether made in a blast furnace or in an electric furnace.

## Wire Rods

On page 100 of the August issue of the Institute pamphlet, under the heading of wire rods, add the following:

"Bundling for export, \$1 per gross ton additional."

## Warehouse Trade

After the second paragraph under the heading "Rulings on Differentials" of the committee's announcement of Sept. 26, 1918, defining the basis of extras and differentials that govern sales from warehouse, add the following paragraph:

"Machine cutting is not considered an inherent part of warehouse trade and where machine cutting is done by warehouses it is considered an accommodation to the purchaser and a reasonable charge may be made therefor, such charge to show as a separate item on invoices."

## President Henn's Views on Readjustment

A. W. Henn, president National Acme Co., Cleveland, when asked his views as to conditions following the war, said: "Peace will doubtless hit some manufacturers who are doing strictly war work or work that does not permit them to adjust their plants and equipment quickly to peace time work. I look for a gradual readjustment in wages and in the price of material. I believe the price of material will go down first and then wages will taper off. Present wages will be almost prohibitive after the war, and they must go back to near where they belong, although wages will probably not go down to where they were before the war. I do not look for a lull in business after the war. The pleasure car will come into its own again, and there will be a big demand for trucks and tractors. The railroads must expand, and there will be a heavy demand on manufacturers for shelf hardware to replenish depleted stocks. In our own plant we can change from war work to peace work with scarcely no interruption in operation, and I do not think peace will cause any falling off in the volume of our business."

An industrial survey is being conducted in the Pittsburgh district by the United States Employment Service, with the co-operation of the Pittsburgh Chamber of Commerce, for the purpose of classifying labor now employed in non-essential industries. This survey is preliminary to the transfer of labor in non-essential lines to essential war work.

## MACHINE TOOL CONDITIONS

President Doan Discusses Cancellations and  
Shows Possible Dangers

CINCINNATI, Nov. 12—(By Wire).—J. B. Doan, president of the National Machine Tool Builders' Association, when questioned in regard to machine tool conditions, said:

"You ask me as president of the National Machine Tool Builders' Association, to advise you as to what is taking place with reference to the cancellation of orders for machine tools. In reply I can only state that which has happened of my own knowledge, and that which some of our members have told me about, to the effect that a number of buyers have made an attempt to cancel orders placed in perfectly good faith and accepted by the seller, and of such I can only state that which is common every day law practice, and that is, that a contract or an order placed and accepted is not subject to cancellation, and every fair minded man cannot but agree with such a theory. Some buyers have requested that orders be held up or suspended, and have evidently made the request without an accurate knowledge of how machine tools are built.

"Machine tools, and especially those of the standard types (in fact, this statement embraces almost every class of machine tools), are not built singly for some particular customer, but are built in quantities or lots, to use machine tool parlance; in other words, as an example, take 20 machine lathes, which are built by almost all builders, approximately 50 machines to the 'lot' with all small parts such as can be made upon automatic machines being made in 100 and perhaps 200 lots. Then when the complete machines are assembled and their various attachments applied, they are shipped to the various customers.

"By this statement of facts you will understand how almost impossible it is to suspend some one or two or three persons' orders for individual machines, because they cannot be picked out of a 'lot' and sidetracked. Therefore this kind of request cannot be complied with.

"As a generally economic condition, it will be readily understood that if any great number of cancellations or 'hold ups' are requested, it would mean an immediate laying off of employees, and would bring about an extremely dangerous and chaotic condition which this country does not want and cannot afford to have, especially at this time, as the problems to be solved in a readjustment or reconstruction period will be great enough without the dissatisfaction that would naturally arise from people out of work.

"Cancellation or 'hold up' requests, if granted, would not only mean the laying off of employees, but the canceling of orders for steel and materials of almost every kind which the machine tool builder had bought to complete his orders.

"I read in the papers that the War Industries Board is reported to have announced that it will endeavor to aid industry in whatever readjustments are required, and it would seem to me that this is not only a necessary, but also a highly desirable thing to do. It behooves every business man to use his brain and efforts for constructive work at this time."

## Fuel Conservation Facts Wanted

At the request of the United States Fuel Administration our readers are asked to write us concerning the savings that have been made by following the United States Fuel Administration's recommendations and as many of the letters received will be published as space conditions permit. These letters should cover three questions:

1. What was done?
2. How was it done?
3. What results were obtained?

It is believed that, in this way, many interesting facts will be brought to light and valuable assistance rendered to the fuel conservation program.



## Metal Markets

### The Week's Prices

Cents Per Pound for Early Delivery

	Copper, New York		Lead		Spelter	
	Lake	Electro-lytic	Tin, New York	New York	St. Louis	New York
Nov. 6.....	26.00	26.00	75.00*	8.05	7.75	8.95
7.....	26.00	26.00	75.00*	8.05	7.75	8.90
8.....	26.00	26.00	75.00*	8.05	7.75	8.85
9.....	26.00	26.00	.....	8.05	7.75	8.85
11.....	.....	.....	.....	.....	.....	.....
12.....	26.00	26.00	75.00*	8.05	7.75	8.75

\*Nominal.

NEW YORK, Nov. 13.

What has amounted to virtually two holidays the past week in this market, Nov. 7 and Nov. 11, together with the conclusion of the war, has decidedly interfered with what little business there was. There is no new business in copper. The tin market is at a standstill. Lead is under strict control. Spelter is very quiet and easier. Antimony has declined still further.

### New York

**Copper.**—With the war over and the consumption of copper for munition purposes likely to be radically reduced in the near future, if not at once, the trade is marking time. It is too early to gage what the effect of this radical and sudden change is to be. Earnest thought is being directed to the new problems. The price is fixed at 26c. until Jan. 1. Whether price fixing will extend beyond that date or whether any change will be made before is uncertain now. The domestic needs for copper which have been unsatisfied for so long will of course be large, but their appearance as definite inquiries may not be immediate. There is a complete absence of new business.

**Tin.**—There is practically no market. The recent advent of a controlled market almost the world over and the question as to how long this will prevail now that the war is over, have introduced so many elements of uncertainty that consumers are buying no more than possible. It is a relief that the import license situation has been cleared up so far as importers and their old contracts are concerned. Such contracts concerning which evidence can be produced that they were booked before Oct. 1 can be filled by import licenses through the original importers. It is estimated that it will take three or four months to clean up this business. The spot market continues nominal at 75c., New York, for such small quantities as are available, in transit or to arrive, but there is less demand than there was. Arrivals at Pacific ports for the month to Nov. 8 have been 925 tons, with 100 at Atlantic ports. The London market was unchanged at £334 per ton on Nov. 7, the last cable received.

**Lead.**—The situation is unchanged at the controlled prices of 7.75c., St. Louis, or 8.05c., New York, with output sold well ahead. How the cessation of hostilities will alter the distribution of the metal it is too early to determine. It is stated that Japanese firms have requested bids for lead shipments from Japan.

**Spelter.**—There are practically no buyers for any position and quotations are nominal and slightly lower. For nearby or November delivery 8.40c., St. Louis, or 8.75c., New York, is asked, with December at 8.20c., St. Louis, or 8.55c., New York. The quotation for first quarter is nominal at about 8c., St. Louis, or 8.35c., New York, with scarcely any demand. There is much speculation as to the effect of peace on this market with the expectation expressed that the transition will be gradual from war demand to that of peace. It is regarded likely that the Government will accept all zinc bought for November and December delivery. The report of the Government for the week ended Nov. 2 shows a small decline in output and a decrease in stocks of over 2600 tons.

**Antimony.**—The prospect of peace has affected this market to such an extent that it has fallen still further and is now quoted nominal at 9.50c., New York, duty paid, for early delivery.

**Aluminum.**—Government maximum prices continue to control this market, effective until Feb. 1, 1919. For No. 1 virgin metal and for scrap, the price is 33c. per lb. for 50-ton lots, 33.10c. per lb. for 15 to 50-ton lots and 33.20c. per lb. for 1 to 15-ton lots.

**Old Metals.**—We are unable to report intelligent prices this week, owing to the fact that practically no transactions have taken place. We are therefore quoting nominally the same prices as last week:

	Cents per lb.
Copper, heavy and crucible.....	26.00
Copper, heavy and wire.....	25.00
Copper, light and bottoms.....	22.50
Brass, heavy.....	17.25
Brass, light.....	12.00
Heavy machine composition.....	23.00
No. 1 yellow rod brass turnings.....	15.00
No. 1 red brass or composition turnings.....	23.00
Lead, heavy.....	8.00
Lead, tea.....	6.50
Zinc.....	7.00

### Chicago

Nov. 12.—In all metals except antimony a satisfactory business has been done, but the market presents no particularly interesting features. Old metals are declining fast, with those who have been accumulating old material eagerly seeking to sell. We quote copper at 26c. for carloads and 27.30c. for part carloads; tin, 77.50c. to 80c.; lead, nominal at 7.85c. in carloads; 8.35c. per lb. for 1 to 25 tons and 8.60c. per lb. for less than 1 ton; spelter, 8.60c.; antimony, 11.50c. to 12c. On old metals we quote copper wire, crucible shapes, 20c.; copper clips, 19.50c.; copper bottoms, 17c.; red brass, 19c.; yellow brass, 13c.; lead pipe, 6c.; zinc, 4.50c.; pewter, No. 1, 35c.; tinfoil, 45c.; and block tin, 50c.

### St. Louis

Nov. 11.—The market has been quiet, with carload lot quotations closing at 7.75c., Government figure, for lead and 8.60c. for spelter. Less than carload lot figures have been: Lead, 8.25c. to 8.50c., according to quantity; spelter, 9.50c.; tin, 85c.; copper, 27.50c.; Asiatic antimony, 17c. In the Joplin district the ore situation has been lethargic, with the usual amount of top grade zinc ore selling at \$75 per ton, basis of 60 per cent metal, while the second grades have ranged down to \$50, with the average for the week \$56.50. Calamine was quiet at \$30 to \$40, basis of 40 per cent metal, with the average for the week \$37. Lead was steady at \$100, basis of 80 per cent metal. On miscellaneous scrap metals we quote dealers' buying prices as follows: Light brass, 10c.; heavy yellow brass, 15c.; heavy red brass and light copper, 21c.; heavy copper and copper wire, 22c.; tinfoil, 65c.; pewter, 50c.; lead, 6.50c.; zinc, 6c.; tea lead, 5c.; aluminum, 20c.

### New Munitions Plants Dropped

ST. LOUIS, Nov. 12.—The Ordnance Bureau has announced the discontinuance of construction on the Laclede Gas Co. shell plant which was to cost \$8,000,000. The project for the conversion of the Anheuser-Busch brewery into a cartridge plant has been dropped.

In an accident, Nov. 9, at the No. 1 furnace of the Eliza group of blast furnaces, Soho works, Jones & Laughlin Steel Co., Pittsburgh, 25 men lost their lives and about 50 others were injured. The furnace is down for relining, and the men were working inside the stack when it suddenly became filled with gas. It was impossible for the men to escape, and most of those who died were immediately asphyxiated.

The Standard Rail & Steel Co., St. Louis, has acquired a new site of about 15 acres and will equip to handle the company's enlarged scrap business, installing cutting machinery and other equipment.

# Prices Finished Iron and Steel, f.o.b. Pittsburgh

Freight rates from Pittsburgh on finished iron and steel products, including wrought iron and steel pipe, with revisions effective Nov. 1, 1918, in carloads, to points named, per 100 lb., are as follows: New York, 26c; Philadelphia, 24.5c; Boston, 30c; Buffalo, 17c; Cleveland, 17c; Cincinnati, 23c; Indianapolis, 25c; Chicago, 27c; St. Louis, 34c; Kansas City, 59c; St. Paul, 40c; Denver, 99c; Omaha, 59c; minimum carload, 36,000 lb. to four last named points; New Orleans, 38.5c; Birmingham, 57.5c; Pacific Coast, \$1.25; minimum carload, 80,000 lb. To the Pacific Coast the rate on steel bars and structural steel is \$1.315, minimum carload 40,000 lb.; and \$1.25, minimum carload 50,000 lb. On wrought iron and steel pipe the rate from Pittsburgh to Kansas City is 50c. per 100 lb., minimum carload 46,000 lb.; to Omaha, 50c., minimum carload 40,000 lb.; to St. Paul and Minneapolis, 49.5c., minimum carload 46,000 lb.; Denver, 99c., minimum carload 46,000 lb. A 3 per cent transportation tax applies. On iron and steel items not noted above, rates vary somewhat and are given in detail in the regular railroad tariffs.

## Structural Material

Beams, 3 to 15 in.; channels, 3 to 15 in. angles, 3 to 6 in. on one or both legs, 1/4 in. thick and over, and zees, structural steel, 3c.

## Wire Products

Wire nails, \$3.50 base per keg; galvanized, 1 in. and longer, including large-head barb roofing nails taking an advance over the price of \$2, and shorter than 1 in., \$2.50. Bright bar wire, \$3.35 per 100 lb.; annealed fence wire, Nos. 6 to 12, \$3.25; galvanized wire, \$3.95; galvanized barb wire and wire staples, \$4.25; painted barbed wire, \$3.65; polished bar staples, \$3.65; cement-coated nails, \$3.40 base; these goods being subject to the usual advances for the smaller than all f.o.b. Pittsburgh, freight added to point of delivery, 60 days net, less 2 per cent off for cash in 10 days. Discounts on woven-wire fencing are 47 per cent off list for small lots, 46 per cent for 1000-rod lots, and 45 per cent off for small lots, f.o.b. Pittsburgh.

## Bolts, Nuts and Rivets

Large structural and ship rivets, \$4.40 base  
Large boiler rivets, \$4.50  
1/4 in. x 6 in. smaller and shorter rivets, .50-10 per cent off list  
Machine bolts h.p. nuts, 3/8 in. x 4 in.:  
Smaller and shorter, rolled threads, .50-10-5 per cent off list  
Cut threads, .50-5 per cent off list  
Larger and longer sizes, .40-10 per cent off list  
Machine bolts, c.p.c. and t. nuts, 3/8 in. x 4 in.:  
Smaller and shorter, .40-10 per cent off list  
Larger and longer, .35-5 per cent off list  
Carriage bolts, 3/8 x 6 in.:  
Smaller and shorter, rolled threads, .50-5 per cent off list  
Cut threads, .40-10-5 per cent off list  
Larger and longer sizes, .40 per cent off list  
Lag bolts, .50-10 per cent off list  
Paw bolts, Nos. 1, 2, 3, .50 per cent off list  
Hot pressed nuts, sq., blank, .250c. per lb. off list  
Hot pressed nuts, hex., blank, .230c. per lb. off list  
Hot pressed nuts, sq., tapped, .230c. per lb. off list  
Hot pressed nuts, hex., tapped, .210c. per lb. off list  
Cone and t. sq. and hex. nuts, blank, .225c. per lb. off list  
Cone and t. sq. and hex. nuts, tapped, .200c. per lb. off list  
Semi-finished hex. nuts:  
3/8 in. and larger, .60-10-10 per cent off list  
1/2 in. and smaller, .70-5 per cent off list  
Screw bolts, .70-10 per cent off list  
Eye bolts, .2 1/2 per cent extra for bulk  
Tie bolts, .50-10-5 per cent off list  
The above discounts are from present lists now in effect.  
All prices carry standard extras.

## Wire Rods

No. 5 common basic or Bessemer rods to domestic consumers \$57; chain rods, \$65; screw, rivet and bolt rods and other rods of that character, \$65. Prices on high carbon rods are irregular. They range from \$70 to \$80, depending on conditions.

## Railroad Spikes and Track Bolts

Railroad spikes, 9/16 in. x 4 1/2 in. and heavier, per 100 lb., \$1.00; lots of 200 kegs of 200 lb. each, or more; track bolts, \$1.00. Boat spikes, \$5.25 per 100 lb., f.o.b. Pittsburgh.

## Terne Plate

Effective May 21 prices on all sizes of terne plates are as follows: 8-lb. coating, 200 lb., \$15 per package; 8-lb. coating, 1 lb., \$13.20; 12-lb. coating, I. C., \$17.00; 15-lb. coating, I. C., \$18.00; 20-lb. coating, I. C., \$19.60; 25-lb. coating, I. C., \$20.20; 30-lb. coating, I. C., \$21.75; 35-lb. coating, I. C., \$22.75; 40-lb. coating, I. C., \$24.00 per package, all f.o.b. Pittsburgh, freight added to point of delivery.

## Iron and Steel Bars

Steel bars at 2.90c. from mill. Refined iron bars, 5.00c.; common iron bars, 3.50c. in carload and larger lots, f.o.b. mill.

## Wrought Pipe

The following discounts are to jobbers for carload lots on the Pittsburgh basing card, as announced Nov. 5 by the Government on steel pipe, those on iron pipe being the same as quoted for some time:

Butt Weld			Iron		
Steel	Black	Galv.	Inches	Black	Galv.
1/8, 1/4 and 3/8	44	17 1/2	1/8 and 1/4	23	+4
1/2	48	33 1/2	3/8	24	+3
3/4 to 3	51	37 1/2	1/2	28	10
			3/4 to 1 1/2	33	17
Lap Weld					
2	44	31 1/2	1 1/4	18	8
2 1/2 to 6	47	34 1/2	1 1/2	25	11
7 to 12	44	30 1/2	2	26	12
13 and 14	34 1/2		2 1/2 to 6	28	15
15	32		7 to 12	25	12
Butt Weld, extra strong, plain ends					
1/8, 1/4 and 3/8	46	22 1/2	1/8, 1/4 and 3/8	22	5
1/2	45	32 1/2	1/2	27	14
3/4 to 1 1/2	49	36 1/2	3/4 to 1 1/2	33	18
2 to 3	50	37 1/2			
Lap Weld, extra strong, plain ends					
2	42	30 1/2	1 1/4	19	4
2 1/2 to 4	45	33 1/2	1 1/2	25	11
4 1/2 to 6	41	32	2	27	14
7 to 8	40	26 1/2	2 1/2 to 4	29	17
9 to 12	35	21 1/2	4 1/2 to 6	28	16
			7 to 8	20	8
			9 to 12	15	3

To the large jobbing trade an additional 5 per cent is allowed over the above discounts, which are subject to the usual variations in weight of 5 per cent. Prices for less than carloads are four (4) points lower basing (higher price) than the above discounts on black and 5 1/2 points on galvanized.

On butt and lap weld sizes of black iron pipe, discounts for less than carload lots to jobbers are seven (7) points lower (higher price) than carload lots, and on butt and lap weld galvanized iron pipe are nine (9) points lower (higher price).

## Boiler Tubes

The following are the prices for carload lots, f.o.b. Pittsburgh, announced Nov. 13, as agreed upon by manufacturers and the Government:

Lap Welded Steel		Charcoal Iron	
3 1/2 to 4 1/2 in.	34	3 1/2 to 4 1/2 in.	12 1/2
2 1/2 to 3 1/4 in.	24	3 to 3 1/4 in.	+5
2 1/2 in.	17 1/2	2 1/2 to 2 3/4 in.	+7 1/2
1 3/4 to 2 in.	13	2 to 2 1/4 in.	+22 1/2
		1 3/4 to 1 7/8 in.	+35
Standard Commercial Seamless—Cold Drawn or Hot Rolled			
Per Net Ton		Per Net Ton	
1 in.	\$340	1 1/4 in.	\$220
1 1/4 in.	280	2 to 2 1/2 in.	190
1 3/4 in.	270	2 3/4 to 3 3/4 in.	180
1 1/2 in.	220	4 in.	200
		4 1/2 to 5 in.	220

These prices do not apply to special specifications for locomotive tubes nor to special specifications for tubes for the Navy Department, which will be subject to special negotiation.

## Sheets

Makers' price for mill shipments on sheets of United States standard gage in carload and larger lots, are as follows:

Blue Annealed—Bessemer		Cents per lb.	
No. 8 and heavier		4.20	
Nos. 9 and 10		4.25	
Nos. 11 and 12		4.30	
Nos. 13 and 14		4.35	
Nos. 15 and 16		4.45	
Box Annealed, One Pass Cold Rolled—Bessemer			
Nos. 17 to 21		4.80	
Nos. 22 and 24		4.85	
Nos. 25 and 26		4.90	
No. 27		4.95	
No. 28		5.00	
No. 29		5.10	
No. 30		5.20	
Galvanized Black Sheet Gage—Bessemer			
Nos. 10 and 11		5.25	
Nos. 12 and 14		5.35	
Nos. 15 and 16		5.50	
Nos. 17 to 21		5.65	
Nos. 22 and 24		5.80	
Nos. 25 and 26		5.95	
No. 27		6.10	
No. 28		6.25	
No. 29		6.50	
No. 30		6.75	
Tin-Mill Black Plate—Bessemer			
Nos. 15 and 16		4.80	
Nos. 17 to 21		4.85	
Nos. 22 to 24		4.90	
Nos. 25 and 27		4.95	
No. 28		5.00	
No. 29		5.05	
No. 30		5.05	
Nos. 30 1/2 and 31		5.10	

## AMONG NEW ENGLAND SHOPS

### Demands of Labor on Some Shops—A Government Official's Experience

Some machine tool manufacturers in Massachusetts have had the following notice served upon them:

That the basic eight-hour day be established.

That time and one-half be paid for the first four hours over the regular work day and double time be paid thereafter.

Double time to be paid for Sundays and the following holidays: New Year's Day, Washington's Birthday, Patriot's Day, Decoration Day, Fourth of July, Labor Day, Columbus Day, Thanksgiving Day and Christmas Day.

Ten per cent extra compensation to be paid to night workers.

Where women are employed on work ordinarily done by men, they shall be paid equal pay for equal work.

That the employees shall have the right to elect a shop committee to take up any grievance which may arise.

That the committee shall have the same right and duties as is vested in the committees under the award of the Emergency Fleet Corporation.

That the rates of pay shall be as follows:

Toolmakers .....	95c. per hour
Machinists .....	85c. per hour
Specialists .....	75c. per hour
Machinists' helpers .....	45c. per hour

That all machine operators, assemblers or bench workers shall be paid at least the specialists' rate.

That all bonus and premium work be discontinued.

That piece workers receive the same per cent increase as the day workers.

That the sanitary conditions of the shop be taken up with the shop committee.

The foregoing demand is by no means general and so few manufacturers have thus far been found to have received it, the conclusion is inevitable that these so favored are being used by way of experiment. Request for action early in November was asked in each case.

### Evening Workers

A Hartford manager speaking of the reported employment in Great Britain of such professional and other non-industrial classes at evening work in factories, said he had a like force of 200 regularly engaged every evening from 6 to 9. A purely patriotic motive was in his opinion the impelling factor in getting these employees to offer their services.

### An Object Lesson

A New England Government official has had an experience that, however surprising to him, bears out some conclusions reached by many employers of labor. The output from a certain plant fell so far below what was expected in one department that an object lesson was arranged. A carefully chosen force of volunteers was sought among the mechanics of the enlisted men at the nearest naval depot. They were put into a factory upon the work in question and as soon as the rawness of the new job wore off, the results were tabulated and compared with the product from the department under suspicion. The difference was found to be five to one!

What was feared might lead to further trouble at Bridgeport in the dispute between the British & American Co. and its employees was in the latter's dissatisfaction that the final award of retroactive pay dated from June 26 instead of from May 1. The company took an appeal from the decision designating May 1 as the date and claimed that the sympathetic strike involving its men did not take place until June 26. Examiner Alpheus Winters has ruled in favor of the company's contention and at a meeting on Oct. 31 the ruling was accepted by the machinists.

### Laying Out Trucking Spaces

Every plant manager knows how important it is that there be enough and not too much trucking room in a busy full-burdened shop. Too much truck room may clutter up and congest the rest of the space, and too little slows up the transportation by crippling the

truckage. Our New England manager has marked out the space by laying down strips of carefully nailed sheet metal between which there is ample passageway. Beyond the strips is placed the work that must be laid on the floor or stacked temporarily between operations, etc. A neighboring plant has a like scheme, only instead of metal strips there is a two-inch strip of white pigment after the manner of a tennis court. Both work well and both are readily replaced.

### Experiences with Women Workers

Some peculiar traits are coming to the surface with the employment of women in shops. A thing that surprised the management in one plant was their readiness to admit blunders of omission or commission. A woman spoils a piece of work. Does she attempt to fix it up so it will scrape by the inspection? A man has often lavished a lot of effort on bringing a bad job within passing distance of an inspector. And there have been cases where the job was hidden out of sight or buried beyond any probable resurrection.

"But the women showed us right away when they went wrong. I've known them to shed tears at their mistakes, but they didn't hang back. They were ready to take their medicine. And in a plant like ours where so many small parts are going through all the time it does help us on our spoilage to know at once how work is going along."

This manager found that his women employees were less liable to accident than men, but more likely to lose time through illness. This conclusion was based on an experience extending over a much longer period than the reign of the present epidemic. He had also tried out some women, a very few, in the toolroom and found them excellent in roughing out cutters, fluting taps and on some grinding. He expected to make use of these women in other parts of the plant where their readiness in handling precision machine tools could be turned to account in instructing others. "But," he added, "I have some doubt about going much further in a practical way in training women in toolmaking. Where they have to rely upon their individual knowledge, or where there must be a grasp of the old-time all-round mechanic's ability they will just fall down. They surely do take hold well on straightforward work, but just how much further they can go is a question."

### Introducing the Stranger to the Shop

There's a big labor turnover in altogether too many plants these days and the foremen have a monotonous succession of instructions to give to the new help. Sometimes the old help need it too. A factory manager recently set the best informed little groups of expert committees at work with his superintendent to scheme out concise and clear sets of instructions that would be put up in front of everybody in the different departments. The workman now simply looks across his bench and sees exactly the order of the various operations and every one of them is given in brief detail in a neat framed announcement of bulletin type.

Employees often hesitate about asking the "boss" to repeat himself. Sometimes their hesitation has good foundation, for the best of foremen may point out plainly that this kind of repetition is no pastime. A trifling deafness, a little timidity or some other cause puts the instructions to the bad. The employee cannot seem incompetent, uninformed, dense; so a venture may be made along mistaken lines and great harm ultimately be done. The instruction card saves all that. It gets to the eye what has been said to the ear and thus there is double impress on the mind. It puts the newcomer on a better footing with the old by saving the time of other workers.

R. I. C.

The Carolina Shipbuilding Corporation, Wilmington, N. C., laid the keel for its first all-steel vessel Nov. 2. It is the first of 12 freighters to be constructed for the Emergency Fleet Corporation, each of 9600 tons, fabricated steel type. It is expected to commence the delivery of the completed ships in about six months. Lorenzo C. Dilks is president of the company.



## NATIONAL FOUNDERS' MEETING

## Labor Problems Discussed—Large Membership of the Association

The twenty-second annual convention of the National Founders' Association was called to order at the Hotel Astor, New York, Wednesday morning, with a large attendance. After prayer and the singing of the "Battle Hymn of the Republic," President William H. Barr delivered his annual report, a liberal abstract of which appears elsewhere in this issue of THE IRON AGE.

Commissioner A. E. McClintock then presented his report telling of strikes during the past year and how they were met by the association. The income of the national treasury of the molders' union for the 12 months ending Sept. 30, 1918, was \$1,010,869, of which \$318,532 was disbursed for strike benefits, while \$348,170 was expended for national and other expenses. Mr. McClintock said in part:

"The enormous requirements of the Government in carrying on its part of the war placed a heavy burden on the foundry industry. The formation of a large army and the taking away of such a vast number of men from ordinary pursuits created a labor situation such as never known before in the history of America. At the time of our last annual meeting, the support of the association in combatting strikes was being accorded to 17 members located in 12 towns, and from which 954 molders and coremakers were on strike. During the year the Administrative Council voted support to 13 members, located at nine towns, from which 342 molders and coremakers went on strike. At the present time, association contract molders are assigned to the shops of eight members, against whom strikes are in progress. While the union still continues to pay strike benefits, and is endeavoring to keep up some semblance of a contest, interest on the part of the strikers is rapidly declining and all of the strikes are becoming inactive.

"We are now face to face with a situation where union agitators are projecting themselves into open-shop communities where the workmen are patriotically and peacefully performing their tasks, ferreting out, one, two, or three workmen in the plant, who are willing to sign a complaint which the union in turn will indorse and file with the National War Labor Board. A case in point has recently come to our attention where an open-shop employer of 300 workmen was called upon to answer to the National War Labor Board to a demand signed by two of his workmen, two union men not employed in his plant, and a business agent, who assumed to represent all of his employees, and asked that a minimum rate of \$6 and an 8-hr. day be established. The officers of the molders' union make no secret of the fact that they propose to file complaints and create cases for the National War Labor Board just as rapidly as time and effort will permit."

The report of the secretary, J. M. Taylor, indicated that the association has the largest membership in its history. The net gain in plants represented in the association was 50 for the year and the total number now represented is 607. It is noteworthy that the plants dropping out of the association had less than half as many employees as the plants which were added to the membership.

At the Wednesday afternoon session addresses were made on the "National War Labor Board," by William H. Vandervoort, member of the board; on "Industrial Management as Related to National Labor Policies," by Herbert F. Perkins, division manager, International Harvester Co.; on the "National Industrial Conference Board," by Albert Greene Duncan, past president National Association Cotton Manufacturers; and on "Coal Production and Distribution," by William H. Williams, vice-president Delaware & Hudson Railroad Co. Sessions of the convention will continue Thursday morning, when a paper on "Elements of the Labor Problem," illustrated by charts, will be presented by Magnus W. Alexander, consulting engineer General Electric Co. and managing director National Industrial Conference Board.

## Steel Corporation Orders Increase

Unfilled orders on the books of the United States Steel Corporation Oct. 31 were 8,353,293 tons, compared with 8,297,905 tons on Sept. 30. This is an increase of 55,388 tons. A year ago the unfilled orders were 9,009,675 tons. There has been but one other increase in orders this year and that was in June, when it was over 500,000 tons. The table below gives the unfilled tonnage for the Steel Corporation at the close of each month beginning with January, 1915.

	1918	1917	1916	1915
January	9,477,853	11,474,954	7,922,767	4,248,571
February	9,288,453	11,576,697	8,568,966	4,345,371
March	9,956,434	11,711,644	9,331,091	4,255,749
April	8,741,882	12,183,083	9,829,591	4,162,244
May	8,537,623	11,886,591	9,937,588	4,264,598
June	8,918,866	11,383,287	9,640,458	4,678,196
July	8,883,801	10,844,164	9,593,592	4,928,549
August	8,759,042	10,407,049	9,660,357	4,908,445
September	8,297,905	9,833,477	9,522,584	5,317,618
October	8,353,293	9,009,675	10,015,260	6,165,452
November		8,897,106	11,058,542	7,189,489
December		9,381,718	11,547,286	7,806,220

## Water Supply Development

WASHINGTON, Nov. 12.—The War Department has authorized the expenditure of \$3,600,000 in the development of the water supply at Hampton Roads, Va. The Construction Division will handle the work which has been divided into four parts, each having a separate appropriation. The principal project is known as the "Portsmouth Water Development," which contemplates raising the dam at Lake Cahoon, additional pumping equipment at Lake Cahoon pumping station, installation of additional pipe between Lake Cahoon and Lake Kilby pumping station, enlargement of filtration plant at Lake Kilby, additional pumping equipment at Lake Kilby station, additional supply main from Lake Kilby pumping station to Portsmouth pumping station, additional reservoir at Portsmouth pumping station, additional pumping equipment at Portsmouth pumping station, a 24-in. main from Portsmouth pumping station to the vicinity of the Navy Yard and a 20-in. main across the rivers and Berkley to connect with the Norfolk Distribution System. The estimated cost for carrying out this project is \$1,800,000.

## Midvale Steel Earnings

Net profits of the Midvale Steel & Ordnance Co., Philadelphia, were \$7,793,627 after meeting interest charges and allowing for federal taxes, in the quarter ended Sept. 30 compared with \$8,545,443 in June quarter. The company earned a net of \$8,039,285 in the September quarter one year ago.

For the nine months of 1918 the company earned a surplus after charges and war taxes of \$24,139,411, equivalent to \$12.06 a share on stock. This compares with a surplus of \$23,353,466 or \$11.67 a share in the corresponding period one year ago.

The Cleveland Brass & Copper Mills, Inc., will erect a one-story office building, 77 x 139 ft. On the completion of this building the company will move its general offices to its plant but will continue to maintain its sales office at its present office headquarters in the Guardian Building, Cleveland.

The Norton Co., Worcester, Mass., manufacturer of grinding wheels, has broken ground for a one-story addition, 40 x 60 ft., to its electric furnace works, Twenty-eighth Street, Niagara Falls, N. Y., to cost about \$10,000. The Ferguson Steel & Iron Co., Bailey Avenue, Buffalo, is the building contractor.

The General Machinery Co., Spokane, Wash., will make enlargements to its plant and equipment costing \$50,000. Property adjoining the present factory has been purchased. The necessity for enlargement is due to increase in regular business and not to war orders.

The new plate mill and jobbing mill of the Brier Hill Steel Co., Youngstown, Ohio, will be ready for operation about Dec. 1.

# Machinery Markets and News of the Works

## MACHINE TOOL PROSPECTS

### Extent of Cancellations the One Great Question

#### Washington Dispatches Indicate Sane Limitations—The Central West Most Affected—Increased Locomotive Building

Machine-tool buying during the past week of peace predictions and armistice negotiation has been practically suspended. Government war projects of recent origin or those of large size, notably the Neville Island gun and projectile plant, are held up. Orders for equipment for this plant are all temporarily suspended, and it is commonly reported at Pittsburgh that the Steel Corporation may take over the property and devote it to the production of large forgings.

It is evident that there must be a readjustment of the metal-working industries in keeping with the virtual capitulation of Germany. Washington dispatches indicate that this is to be effected through the agency of the War Industries Board, and that while the Government will not undertake to accept any overload of supplies without any utility in time of peace, it will also avoid wholesale or wanton cancellation of contracts.

Logical steps have already been taken by the War Department to taper off war work by ordering no more Sunday work or overtime in Government-owned and

controlled plants and in those producing war supplies. The Secretary of War has also appointed a Board of Contract Adjustment to handle questions arising in connection with war work. Detailed announcement of this body and its purposes are given on page 1217.

How far cancellation of contracts for war work will be carried, and to what extent machine-tool makers will as a result be asked to cancel orders for equipment, is the great problem, and there is no question that the Government must lead in its solution. In the Eastern States, approximately coinciding with the Government barred industrial zone, where new war work does not bulk so large, cancellations so far have been few. Reports from the Central West indicate that they have been much more numerous there. At Chicago considerable uneasiness is felt for the future. Cincinnati reports comparatively few originating with shell makers and none from the Navy Department.

Some of the cancellations have been on orders for lathes, where cancellation was permissible under certain conditions. Others occurred where deliveries have been set back or long delayed.

The Pennsylvania Railroad has been authorized to expend \$2,000,000 for the enlargement of its Juniata and Altoona shops. The work at Juniata is for increasing the locomotive-building capacity. In this connection it is understood that plans for increasing the locomotive-building capacity of the country call for additions to various railroad shops of this kind rather than a large new plant such as was projected for operation at Chicago by the Baldwin Locomotive Works.

## New York

NEW YORK, NOV. 11.

An optimistic view is taken by local dealers as a whole as to the ability of the metal-working industries of the country to shift to peace-time work without any serious disturbance to business. The announcements from Washington of the elimination of overtime and Sunday work on War Department contracts, and the reported appointment by the Secretary of War of Lieut.-Col. C. B. Garnett as chairman of a board for contract adjustment, have tended distinctly to reassure the local trade that any cancellation of machine-tool orders will be kept down to a minimum and will be effected with the least possible hardship to everyone concerned.

While a Washington dispatch states that Chairman Baruch of the War Industries Board is strongly opposed to any wholesale or wanton cancellation of contracts, it points out that he does not believe that the Government ought to be overloaded with supplies without any utility in times of peace. What readjustment will be fixed upon in keeping with these views has not yet been detailed. It is surmised generally that the transition must be a logical one and would therefore be linked up with a resumption of work non-essential for war.

The tardiness with which the Government took up the consideration of plans for the reconstruction period has apparently spurred far-sighted manufacturers to the perfection of an individual program to carry them over such a time. This is especially true of the large manufacturing interests in southern New England. Machine-tool buying by many of these and other companies has been wherever possible for types of tools adapted to their regular pre-war work or to new lines for which many of them have made provision. Jig and tool makers of Greater New York, throughout the war concentrated on sub-contracts for large munition makers, have in many cases taken similar precautions in their purchasing.

So far cancellations in this market have amounted to

almost nothing. One up-state arms maker is reported to have stopped shipment on one lot of tools, presumably in connection with the initiation of work on a new contract. The amount of second-hand machinery that will appear on the market is expected in some quarters to be large, but no fear is expressed that it will cause any prolonged stoppage in the sale of new tools. It is a common feeling that the momentum of war work will carry over into peace operations. It is also recognized that many plants have neglected to some extent the upkeep of equipment and have frequently been forced to put their machines in charge of careless or unskilled operators, both practices resulting in the rapid wearing out of the tools. While these factors make for fewer serviceable second-hand tools, there will still be many capable of repair. It is probable this will create a sizable business between the machine-tool manufacturers and users, the replacement of parts having customarily been referred back to the maker.

One dealer in large second-hand machine tools discounts almost entirely any appearance of such equipment as a result of reconstruction, on the ground that deliveries are a year or so behind demand. No steps have been made here so far to cancel any orders for these sizes of machinery.

A strong revival of export demand is generally expected to follow the establishment of peace. Inquiry is reported already to have set in from neutral European countries and Italy. As to the Orient, Japanese houses here consider the situation in that land too uncertain to warrant buying now to any great extent.

Armistice negotiations and peace celebrations have interrupted business. Only a few transactions have been put through the past week. Several large lists, which have been under consideration for some time, are either withdrawn or dormant. Practically no crane business has been done, either; the New York Central still not having placed orders. As regards the railroads, the new policy for adding to the locomotive-building capacity of the country is understood to call for increasing present modern railroad shops of this character instead of establishing one or more new shops.

such as was considered in the Chicago district by the Government in cooperation by the Baldwin Locomotive Works.

The Atlantic Basin Iron Works, Summit Street, Brooklyn, manufacturer of machinery, has awarded contract to Post & McCard, 161 Park Avenue, New York, for a one and two-story large shop, 67 x 210 ft., at Inlay and Bowne Streets, at cost \$30,000.

The New Method Molding & Metals Corporation, New York, has been incorporated with a capital of \$1,000,000, by Charles S. Rice, Paul S. Smith and Samuel B. Howard, 23 Nassau Street.

The Carolina Shipbuilding Corporation, New York, has been incorporated with a capital of \$45,000 by F. H. Pease, L. J. Huns and R. McL. Johnson.

Rowan, Drew & Clydesdale, Inc., New York, manufacturer of elevators, conveying machinery, etc., has increased its capital from \$40,000 to \$250,000.

The Magnet Far Eastern Corporation, New York, has been incorporated with a capital of \$60,300 by J. E. Delmonico, 41 Union Square; J. Este, 770 Jackson Avenue, and E. Klein, 2352 Seventh Avenue, to manufacture metal products.

The proposed improvement work to be made at the Brooklyn Navy Yard by the Bureau of Yards and Docks, Navy Department, Washington, will consist, in part, of the erection of 12 portable buildings for general plant extensions. A new shop for light machine work, electrical repair operations and other service will be established, with equipment to cost about \$500,000. Plans are also being prepared for rebuilding shipway No. 1 to cost \$400,000. C. W. Parks is chief of the bureau.

The Dredstrous & Storms Tool Corporation, 42 Broadway, New York, recently incorporated, has leased property at 42nd Place and East 144th Street, for its works.

Fire, Nov. 5, damaged the machinery and patterns at its plant of the New York Buff Co., 202-4 Centre Street, New York.

The Clifton Machine Co., Main Avenue, Clifton, N. J., has voted to discontinue its general machine business and is understood the entire equipment will be disposed of.

Fire, Nov. 5, caused by an explosion, destroyed four buildings at the plant of the Metals Disintegrating Co., Bound Brook, N. J., manufacturer of aluminum powder for star shells, etc.

George Karbureck, Inc., Caldwell, N. J., has been incorporated with a capital of \$10,000 by George Karbureck, M. J. Karbureck, Caldwell; and Henry M. Lutz, New York, to manufacture fireproofing products.

The War Department, Washington, has authorized the construction of a two-story building at the Raritan Arsenal, Metuchen, N. J., to cost about \$76,800.

The International Arms & Fuse Co., Bloomfield, N. J., has filed plans for a one-story addition on Grove Street, 28 x 92 ft.

The Radium Luminous Material Corporation, Boonton, N. J., is planning an addition to its plant of about 10,000 sq. ft.

The Bergen Tool & Machine Co., Jersey City, N. J., has filed notice of organization to operate a works at 125 Union Street. Robert F. Johnston, 23 Winfield Street, and J. P. Richmond, 341 West Twenty-second Street, head the company.

Fire, Nov. 6, destroyed the building of the Independent Lamp & Wire Co., Inc., Gregory Avenue, Weehawken, N. J., with loss estimated at about \$75,000.

The Jersey City Cutting & Welding Works, Jersey City, N. J., has been organized by John G. and Samuel Lowe to operate a local machine and welding shop.

The Swiss Scallop & Thread Cutting Co., West Hoboken, N. J., has filed notice of organization to operate a works at 128 8th Avenue, for the manufacture of textile equipment. Fred Fehr, Columbia Avenue, Fort Lee; and Ernest Dietz, 817 Avenue Street, West Hoboken, head the company.

The Terminal Pattern & Model Works, Newark, has been incorporated with a capital of \$100,000 by J. C. and C. H. Sawyer, and E. F. Krautter.

The General Lead Batteries Co., 4 Lister Avenue, Newark, has leased a one-story building at Central Avenue and East Street, 50 x 150 ft., for extensions.

The jewelry manufacturing plant of the Ernest Gideon Bell Co., 17 Austin Street, Newark, will be sold by A. Morgan Palmer, Allen Property Custodian, Nov. 27.

Fire, Nov. 8, caused by an explosion, damaged a portion of the reloading plant of the Grenade Loading Co., Port Ewen, New Kingston, N. Y., with loss reported at \$50,000.

The Essex Foundry, Murray Street, Newark, manufacturer of cast-iron pipe, etc., has taken bids for a one-story and basement addition.

#### Catalogs Wanted for India

W. G. Dwyer, representing McLeod & Co., 28 Dalhousie Square, Calcutta, India, will arrive in the United States early in 1919 with a view to placing orders in this country and making arrangements for the handling by his firm of factory equipment, machine tools, oil engines, etc. Manufacturers in the United States in the lines mentioned are asked to send catalogs to Mr. Dwyer addressed in care of J. E. Sitterley, 47 Broadway, New York, also to send duplicate copies to McLeod & Co., at Calcutta.

## Buffalo

BUFFALO, NOV. 11.

The Metal & Alloy Specialty Co., 25 Illinois Street, Buffalo, has abandoned its project of erecting a foundry at Marion Avenue and the New York Central Railroad, and has purchased the one-story plant of the Buffalo Builders' Supply Co., Elmwood Avenue and the Erie Railroad, which it will at once equip as an aluminum and brass foundry for the manufacture of airplane parts. Elmer Rae is vice-president and manager.

The Buffalo Dry Dock Co., Ganson Street and the Buffalo River, is building an addition to its punch shop to cost \$20,000.

The Power Specialty Co., Dansville, N. Y., is making extensive additions to its plant and is also erecting a new office building at a cost of \$10,000. The company employs 325 men and is increasing its output.

The Curtiss Aeroplane & Motor Corporation, Buffalo, John M. Willys president, has let contract to the Austin Co., Cleveland, for a one-story addition, 81 x 87 ft., to cost \$10,000.

G. Elias & Brother, Inc., 965 Elk Street, Buffalo, is taking bids for the construction of a gas producer house, boiler house and coal storage building at Elk Street and the Buffalo Creek Railroad.

The charging plant being erected by the Prest-O-Lite Co., Marilla and Hopkins streets and the Buffalo, Rochester & Pittsburgh, and South Buffalo railroads, Buffalo, will consist of four buildings, 54 x 135 ft., 37 x 150 ft., 40 x 70 ft., and 20 x 50 ft., respectively.

Plans have been completed for an addition to the boiler house of the municipal lighting plant, Herkimer, N. Y., to cost \$50,000. H. B. Sweet, Herkimer, is the architect.

The International Salt Co., Watkins, N. Y., is having plans prepared for an extension to the boiler house at its Glen works, at an estimated cost of \$15,000. George A. Walter is general superintendent.

W. G. McAdoo, Director General of Railroads, Washington, D. C., has let contract to the Tift Construction Co., Iroquois Building, Buffalo, for the construction of a stripping and finishing building, 44 x 102 ft., for the Pennsylvania Railroad, Olean, N. Y., to cost \$40,000.

Ogden R. Adams, 159 St. Paul Street, Rochester, N. Y., metal-working machinery, has incorporated the O. R. Adams Mfg. Co. to manufacture lathes and other equipment, in connection with the operation of a general machine shop. The new company has a capital of \$20,000. O. R. and R. M. Adams, and W. R. Hancock are the incorporators.

The Star Electrode Works of the National Carbon Co., Buffalo Avenue, Niagara Falls, N. Y., has had plans prepared for a two-story addition, 80 x 80 ft.

The Electro Metallurgical Co., Union Street, Niagara Falls, N. Y., manufacturer of ferroalloys, is considering the erection of an addition to cost \$14,000.

The Colonial Machine Co., Syracuse, N. Y., has been incorporated in Delaware, with capital of \$100,000, by Aaron Vandecar and others, to manufacture machinery.

## Philadelphia

PHILADELPHIA, NOV. 11.

The Bethlehem Steel Co., Bethlehem, Pa., is planning the construction of a two-story addition, 60 x 60 ft., to its machine shop No. 4 and a four-story addition, 35 x 64 ft., to machine shop No. 2; also a new one-story scale house at its Northampton works.

The National Forge & Tool Co., Irvine, Pa., has broken ground for a one-story forge shop addition, 40 x 60 ft. A new crane runway will also be built.

The Reading Brass Works, Reading, Pa., has recently been incorporated with a capital of \$10,000. Arthur R. Wicklein is treasurer.



The Maccar Truck Co., Scranton, Pa., has awarded a contract to E. A. Fuller, 1616 Dickson Street, for the erection of an addition, 70 x 200 ft., estimated to cost \$75,000.

John M. Kennedy, Tenth and Chestnut streets, Philadelphia, has broken ground at South Venango and West Hope streets for a one-story machine shop, 70 x 105 ft., to cost \$7,000, exclusive of equipment.

The Bulkrug Machinery Co., Philadelphia, has leased the fifth floor of the building at 1026-28 Filbert Street, for a new establishment.

The Pennsylvania Forge Co., Wakeling and Stiles streets, Philadelphia, has awarded a contract to William G. Donley, Drexel Building, for a one-story shop at Jenks and Bath streets.

H. S. Henry & Co., 1423 McFerran Street, Philadelphia, manufacturers of waste, have recently been incorporated with a capital of \$25,000. Harry S. Henry is treasurer.

The Department of Public Safety, Philadelphia, has had plans prepared for a municipal repair shop at Eleventh and Reed streets.

The American Insulation Co., Roberts Avenue and Stokley Street, Philadelphia, has filed plans for a one-story boiler and engine plant to cost \$20,000.

The Hill-Independent Mfg. Co., Philadelphia, has recently been incorporated with a capital of \$150,000 to manufacture metal stamps, etc. James D. Latimer is treasurer.

The Crescent Insulated Wire & Cable Co., Olden and Taylor streets, Trenton, N. J., has received an order from the Government for special wire for overseas use. The number of employees will be increased to handle it.

## New England

BOSTON, Nov. 11.

The news of peace is bringing out opinions that this does not involve a cessation of the manufacture of munitions and other war equipment. Government officials and plant executives are urging everywhere that the fastest possible pace be maintained on contracts now in hand. The erroneous report that Germany had signed the armistice resulted in a general half-day halt of New England industries on Nov. 7 and caused a serious loss of output. At the very time that the news was being circulated of a surrender, misleading so many into the belief that munition making would stop, a Bridgeport concern was figuring on supplying the equipment for a new munition factory in the South. Both Army and Navy camps and depots are being combed for men to supply as far as this can be done the shortage of help in very essential war industries. Already many are at civilian work on "indefinite furlough" conditions and more are expected to enter the shops.

W. G. & I. H. Chase, Lakeport, N. H., are rebuilding a one story box shop, 60 x 207 ft., at Laconia, N. H.

General contract has been let for an engine house and shop at Stafford, Conn., for the Central New England Railroad, care the New York, New Haven & Hartford Railroad Co., New Haven, Conn.

A one-story brick extension, 60 x 250 ft., is planned for the machine shop at Derby, Conn., for the General Ordnance Co., New London, Conn. F. L. Blake is secretary.

Drawings are ready for the floating dry dock, shops and repair plant involving expenditures of \$10,000,000 at Jeffries Point, Boston, Mass., for the Emergency Fleet Corporation, Philadelphia. It will also build a 5000-ton dry dock to cost \$900,000 at Portsmouth, N. H., and has plans for a dry dock, at Portland, Me., totaling \$2,100,000.

Work is under way on a brick and steel power house, 40 x 75 ft., to cost \$45,000, for the Sidney Blumenthal Co., Shelton, Conn., and 495 Fifth Avenue, New York.

Federal permit has been applied for on the erection of a \$4,000 monitor type building by the Fafnier Bearing Co., New Britain, Conn.

Federal permit has been asked for a one-story addition, 80 x 108 ft., to the tempering room of Landers Frary & Clark, New Britain, Conn.

Progress is being made on the two-story addition, 40 x 80 ft., costing \$20,000, to the factory of the Trumbull Vanderpool Electric Mfg. Co., Litchfield, Conn., though all contracts are not yet awarded.

A one-story brick addition to the power house is planned by the Central Connecticut Power Co., Leesville, near Middletown, Conn., at a cost of \$26,200.

The Boston & Maine Railroad North Station, Boston, has awarded a general contract for a coaling station at Dover, N. H.

The cash box and deposit box and stationers' hardware factory of the Merriam Mfg. Co., Durham, Conn., was seriously damaged by fire on Nov. 5.

Foundation is in for a factory addition, costing \$2,500, for William H. Nichols, Waltham, Mass., maker of watch tool machinery.

The Abrasive Machine Tool Co., East Providence, R. I., has begun work on a 40 x 50 ft. addition.

The annealing room is nearing completion for the new foundry, one and two stories, 100 x 200 ft., at Hillsgrove, R. I., for the Rhode Island Malleable Iron Works. Work on a pattern storage building of 2500 sq. ft., is under way.

Fire destroyed the No. 2 plant and many aeroplanes of the Burgess Aeroplane Co., Marblehead, Mass., on Nov. 7.

Drawings are under way for a Government Aeroplane station, to cost \$400,000, in Rhode Island. The engineer is Col. F. M. Gunby, Seventh and B streets, S. W., Washington, D. C., and the architect is Col. F. B. Wheaton of the same address.

A Federal permit has been asked for a \$15,000 addition to the plant of the Providence Steel & Iron Co., Providence, R. I. The engineer is E. B. Whipple, 17 Exchange Street, Providence, R. I.

The general contract has been let by the Government for additions and alterations, 206 x 256 ft., to cost \$300,000, at the Charlestown, Mass., Navy Yard.

An appropriation bill for \$2,000,000 is now in Congress for a dry dock at Providence, R. I. The consulting engineers are Hamilton & Chambers, 29 Broadway, New York.

A two-story factory addition, 40 x 48 ft., for the Fitchburg Grinding Machine Co., Fitchburg, Mass., is under construction.

The Wheeler Reflector Co., 156 Pearl Street, Boston, is erecting a two story brick addition, 30 x 100 ft., to the plant at Hanson, Mass.

Plans for a two-story addition, 44 x 200 ft., to the plant of the Morgan Spring Co., Worcester, Mass., will for the present be held in abeyance.

A two-story addition to the core room, 45 x 45 ft., for the foundry of the Crampton & Knowles Loom Works, Worcester, Mass., has been indefinitely postponed.

Plans for a machine shop addition at Portsmouth, N. H., involving \$135,000, have been prepared by F. R. Harris, chief of the Bureau of Yards and Docks, Washington, D. C.

The Lockwood & Greene Co., Boston, has plans for a fire pump house of reinforced concrete for the Stark Mills, Manchester, N. H.

The Palmer Foundry & Machine Co., E. W. Lynch, proprietor, Palmer, Mass., is building a one and two story addition, 75 x 120 ft.

The Hooker-Mossberg Corporation, Attleboro, Mass., has been organized to take over a large contract for the manufacture of airplane parts for the Government. The officers are: Leslie E. Hooker, president and treasurer; Frank Mossberg, vice-president and general manager, and Chester A. Miller, secretary.

## Baltimore

BALTIMORE, Nov. 11.

The Baltimore & Ohio Railroad Co., Baltimore, has awarded a contract to Frairie Brothers & Haigley, 18 Clay Street, for the construction of a one-story, 90 x 240 ft., fireproof repair shop at Gilmer Street, to cost about \$175,000. H. A. Lane is chief engineer.

The Columbia Coal & Brick Co. plant, Buckeystown, Md., recently destroyed by fire, will be rebuilt.

The Pulaski Foundry & Mfg. Co., Pulaski, Va., will install additional machinery and manufacture steel castings.

B. M. Herbert, 73 Chestnut Street, Norfolk, Va., is seeking prices on second-hand lathes, drill presses, shapers, bolt machines and other machine-shop equipment.

The Southern Sewer Pipe Co., Birmingham, Ala., plans the rebuilding of its machine shop recently burned.

Charles T. Lehman, 1921 Powell Avenue, Birmingham, Ala., wants prices on 100 to 150-hp. portable boilers.

The Farmers' Co-operative Association, Dublin, Ga., is seeking prices on gas engines. J. R. Cherry is manager.

A. C. Price, Stillmore, Ga., is in the market for second-hand generators.

The United States Maritime Corporation, Brunswick, Ga., wants prices on 1500-lb. steam hammers.

A. Wilford & Co., 1425 Haubert Street, Baltimore, millwrights and machinists, have purchased the property at 725 East Fort Avenue, with factory and other buildings, and will move to the new location. Later it is planned to build additions and purchase more equipment.

Fire Nov. 2 damaged the foundry of the Greenmount Iron & Mfg. Co., 883 Greenmount Avenue, Baltimore.

The United Electric & Welding Co., Marine Bank Building, Baltimore, has been incorporated with \$25,000 capital stock by William H. Lambdin, Douglass H. Kennedy and Walter Sherman.

The Maryland Bolt Co., Continental Trust Building, Baltimore, has changed its name to the Maryland Bolt & Forge Co.

The Bureau of Yards and Docks, Washington, has awarded a contract to Hyde & Baxter, 711 Thirteenth Street, for an addition to the boiler plant at the local navy yard to cost about \$152,000. Contract has also been awarded to the Kraft Construction Co., 350 North Clark Street, Chicago, for an addition to the machine shop at the naval grounds, Key West, Fla.

The Kelly Metals Co., Wilmington, Del., has been incorporated with a capital of \$600,000 by Reuben Satterthwaite and R. J. Breimeissen.

In connection with its new nitrate works at Indian Head, Md., the Bureau of Yards and Docks, Navy Department, Washington, will build a railroad construction and repair shop, to cost about \$45,000. Other work in this project includes an aviation station to cost \$187,000, gun pits and repair buildings, \$330,000.

The War Department, Washington, has approved appropriations of \$1,203,185 for a new ordnance plant in Delaware and \$660,000 for an aerial gunnery school at Miami, Fla. The proposed sulphuric acid plant to be located at Grand Rapids, Mich., has received the approval of the department, with an appropriation allotment of \$1,500,000.

The Government has awarded a contract to the Ulen Contracting Co., 120 Broadway, New York, for improvements to the water supply systems at Portsmouth, Berkley and Suffolk, Va., to cost about \$2,000,000. The work will include the enlargement of the power house, shop buildings for construction work, etc.

The Bureau of Yards and Docks, Navy Department, Washington, is having plans prepared for a boiler plant at Hampton Roads, Va., to cost \$25,000.

## Pittsburgh

PITTSBURGH, NOV. 11.

Orders for machine tools, cranes and other equipment and material for the Neville Island gun and projectile plant were all temporarily suspended this week, pending changes and plans in this project. While no official statement can be obtained here, it is commonly reported in the machinery trade that the United States Steel Corporation may take over the property and complete the plant, using it for the manufacture of large forgings.

Aside from business which is being placed by the Pennsylvania Lines West, the local machine tool market is rather quiet. Machine tool dealers have received new shipping instructions in a number of instances or tools purchased by the Government. Tools purchased for certain plants are to be shifted to other plants, and it is assumed in the trade that this means that the Government will concentrate the manufacture of war materials during the readjustment period in a fewer number of plants.

The Pennsylvania Railroad, Eastern Lines, will expend about \$2,000,000 for the enlargement of the Juniata and Altoona shops, authorization for these enlargements having been received from the United States Railroad Administration. The plans are to provide additional steam and electric power for both the Juniata and Altoona shops, and the new equipment to be purchased will include turbines, rotary transformers, switches and transmission lines. At the Altoona machine shops new stokers for the present boilers will be installed. In addition to this, there will be an extension to the building and changes in the tracks at the Juniata shops in order to increase the output of locomotives. A 100 ft. extension to the erecting shop will be built, and it is planned to move the present scale shop to the paint shop after making certain extensions to it and additional machinery will be provided for scale work. This will relieve other machines in the machine shop from this class of work, making them available for locomotive work exclusively.

The Thomas Spacing Machine Co., Pittsburgh, is building an addition to cost about \$100,000 to its works at Glenshaw, Pa. Some of the equipment has already been bought.

The Westinghouse Air Brake Co., Pittsburgh, has issued a circular to its shareholders stating that the value of unfilled orders on Nov. 1 was approximately \$11,000,000. The circular states that the company now has no contracts for munitions or other war material, and that nearly all its present contracts for brake equipment and other allied products are for cars and locomotives in use or for use in the country. The same is said to be true of the Union Switch & Signal Co. subsidiary. The switch company's principal contract with the United States Government for Lehrone air-

plane motors is reported to be nearing completion, and supplementary contracts on which work has been started can be canceled without loss if the Government decides to cancel. The circular states further that the Westinghouse company expects an increasing demand for transportation facilities not only in this country, but in foreign countries, particularly France and Belgium, and it believes there is no reason to anticipate any reduction in the brake business during 1919.

The Pittsburgh Iron & Steel Foundries Co., Midland, Pa., manufacturer of metal alloy, steel castings, etc., is planning to enlarge its facilities.

The plant and equipment of the Apollo Electric Steel Co., Apollo, Pa., with furnaces, mill equipment, etc., will be sold as a going concern at a trustee's sale in bankruptcy, Nov. 25. Joseph J. Goldsmith, Frick Building, Pittsburgh, is trustee in bankruptcy.

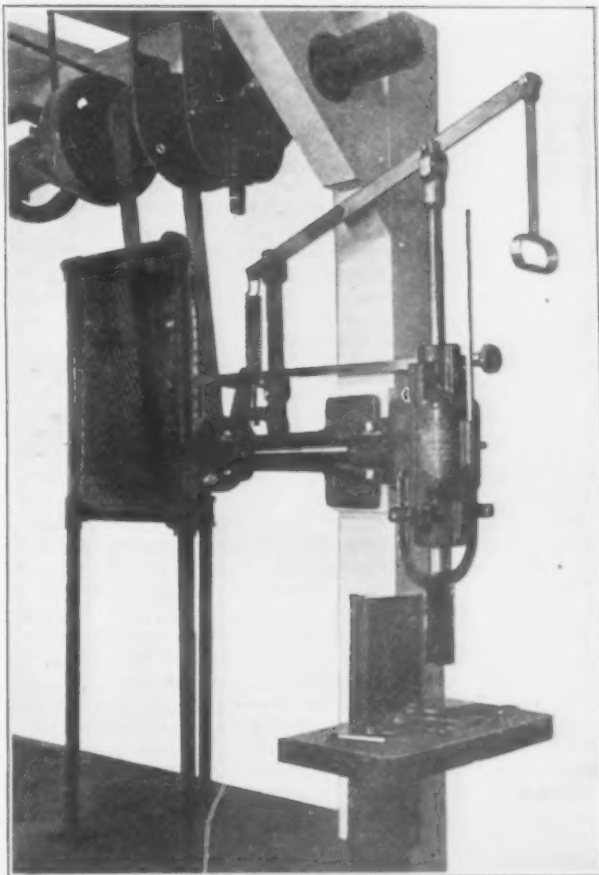
The Keystone Brass Foundry Co., Pittsburgh, manufacturer of brass, bronze and aluminum castings, has recently removed its plant from 116 South Beatty Street to quarters on Wolfendale Street, Northside.

The Duquesne Light Co., Pittsburgh, is taking bids for a one-story machine shop, 25 x 100 ft., to be located near its electric power plant, Brunots Island.

The University of Pittsburgh, Pittsburgh, will build a one-story repair shop on Berthoud Street, to cost \$6,000. Plans have been filed.

The Cyclops Steel Co., Titusville, Pa., will build a one-story forge shop, 65 x 92 ft.

The Southern Brass Works, Portsmouth, Va., is planning the erection of a one-story extension.



A Home-made Guard for a Wood-boring Machine Which Protects the Driving Belt and Pulley, as Well as the Dead End of the Overhead Countershaft and the Boring Bit

## Chicago

CHICAGO, NOV. 11.

Machine-tool dealers, having before them the possibility of munitions makers refusing to accept machines they have ordered, are showing signs of uneasiness which has been accentuated by reports from Washington that at least one congressman had suggested an immediate cessation of war work. Other news from Washington, quoting Chairman Baruch of the War Industries Board as saying that war work will be discontinued gradually and in a way to disturb industry to the minimum, they find more encouraging.

That dealers have some cause for feeling uneasy is plain from the fact that several have already received a few

cancellations from munitions plants. One company saying that the Government has modified its shell contract, asks that its order for a special machine used in finishing shells be cancelled. The dealer concerned placed the proposition before the builder of the machine and the latter said he could not accept a cancellation. The buyer suggested that the machine might be sold to some other plant, but in view of recent events that proposal does not promise results. It will be realized that a dealer stocking such a machine has a very remote prospect of selling it; meanwhile several hundred dollars is tied up. In this case the dealer declined to accept cancellation, and will ship and bill the machine as a test case.

In some cases dealers have submitted the problem to their principals, but the latter express varying views. With a good customer it has been the policy of the dealers and sellers of machine tools to accept an occasional cancellation, but with any wholesale movement in that direction, they must make a stand for their own protection. The situation is particularly serious where it is proposed to cancel orders for machines adaptable only to shell or other munitions work. Manufacturers of strictly standard machines have but little to fear in the judgment of the trade, providing they are not committed too far ahead, both in the matter of deliveries and raw material. Having to use raw materials bought at present levels would be a serious proposition should the prices of tools come down in a radical way. At this writing, however, there appears to be no likelihood of a decline in prices. In fact, some will advance with the first of the year.

The past week has shown a quieter tendency, all admit, but nevertheless a few good inquiries have been received.

Sub-contracts have been awarded for a one-story foundry, 65 x 90 ft., at 1990-1994 Kingsbury Street, Chicago, for the Funk & Son Co., forge works, 1326 Cortland Street, to cost about \$10,000.

The E. W. Sproul Co., 1120 West Thirty-fifth Street, Chicago, has the general contract for a one-story boiler house, 30 x 45 ft., at 3800 Racine Avenue, Chicago, for the Amalgamated Machinery Corporation. The same company is erecting a one-story shop, 67 x 307 ft., for the corporation, the cost to be \$75,000. The buildings are additions to a plant for the manufacture of ordnance-making machine tools, the total cost of which will be \$500,000. One of its contracts represents 186 large shell boring and turning lathes for Neville Island, Pittsburgh.

The McLean Construction Co., builder, 176 West Monroe Street, Chicago, will erect two one-story stamp mills, 132 x 150 ft., and 250 x 300 ft., at Mason, Mich., the total cost to be \$250,000. J. W. Hoff, engineer, 301 Wesley Avenue, Oak Park, Ill., made the plans.

A building permit has been granted to the Calumet Refrigerating Co., 337 Alexander Street, Chicago, for alterations to a three-story and basement refrigerating building, to cost \$25,000. The Scown Building Co., 36 West Randolph Street, has the contract.

The former plant of the Smith Form-a-Truck at Sixty-third Street and Fifty-fourth Avenue, Chicago, has been purchased for what is believed to be an Eastern interest for \$204,500. It was intended to sell the property at auction, but this was obviated.

The A. Y. McDonald Mfg. Co., Dubuque, Iowa, manufacturer of brass products, pipe, etc., is considering the erection of a one-story building, 130 x 132 ft., at Omaha, Neb., to cost \$25,000.

The Chicago Transfer & Clearing Co., 38 South Dearborn Street, Chicago, is taking bids for the construction of a one-story foundry, 100 x 100 ft., on West Sixty-sixth Street, to cost about \$25,000.

## Milwaukee

MILWAUKEE, NOV. 11.

New orders have been booked at a very satisfactory rate by local machine tool builders the past week, the reports of an early peace not interfering with business or production. Unfilled orders are of sufficient volume to keep plants running at capacity well into the new year. Tool manufacturers are giving much thought and consideration to future problems, but nothing can be discerned which should cause any particular apprehension in respect to keeping capacity well occupied. As a matter of fact, post-war problems were taken under due consideration even before the war itself was fairly under way.

Local metal-working concerns which booked Government contracts the past week include: Allis-Chalmers Mfg. Co., generators and spares; Milwaukee Tank Co., tanks; Cutler-Hammer Mfg. Co., spares; Luther Grinder Mfg. Co., grinders; Mechanical Appliance Co., motors; Northwestern Mfg.

Co., motors; National Enameling & Stamping Co., enameled ware; Cutler-Hammer Mfg. Co., lifting magnets and accessories; Milwaukee Flush Valve Co., pop valves; Roberts Brass Co., gate valves; Western Iron Stores Co., twist drills; C. H. & E. Mfg. Co., portable saw rigs; U. S. Aero Propeller Co., airplane propellers; American Grinder Mfg. Co., 2000 tool grinders; Milwaukee Gas Specialty Co., bronze materials.

The Hamilton Mfg. Co., Two Rivers, Wis., which has been engaged on a contract to furnish parts and materials for 4000 airplanes to the Dayton Wright Airplane Co., for delivery by Dec. 24, has been awarded additional contracts which will require most of its capacity well into the coming year. The Hamilton company manufactures steel and wood printing office furniture, type, etc.

The Fabricated Ship Corporation, Milwaukee, laid the first three keels for a total of 13 fabricated vessels to be delivered beginning May 1, 1919. All of the ships will be 172 ft. long. Ralph Newton is general manager.

The Foster-Latimer Lumber Co., Mellen, Wis., will rebuild at once its machine shop, roundhouse and smithy, totally destroyed by fire Oct. 31, with an estimated loss of \$15,000. All tools and equipment will have to be replaced.

The West Bend Aluminum Co., West Bend, Wis., is completing a new factory and warehouse, and intends to treble its capacity of aluminum ware by Dec. 1. The improvements will cost approximately \$100,000, including equipment.

The Robbins Lumber Co., Rhinelander, Wis., is contemplating the construction of an addition to its planing mill to cost about \$25,000. Considerable new electric generating and wood-working equipment will be purchased.

The DePere Mfg. Co., DePere, Wis., boiler and structural fabricator, which is executing an order for 55 large marine boilers for the Emergency Fleet Corporation, has awarded contracts for the erection of a new shop, 100 x 100 ft., of brick and heavy mill construction, equipped with a 30-ton electric traveling crane. The present force of 150 men will be increased to 225 when the building is ready. The general contract has been awarded to A. Beauregard, DePere.

The Four Wheel Drive Auto Co., Clintonville, Wis., has taken over the entire capacity of the Silent Washer Co. of that city, to be used as a wood-working shop principally for the production of shipping cases for motor trucks. The company recently received orders to ship all trucks in boxes until further notice.

The Highway Trailer Co., Edgerton, Wis., expects to occupy its new manufacturing building, 50 x 250 ft., on Dec. 1 and is laying foundations for a new boiler house, which it intends to complete early next spring. The company is devoting practically all of its capacity to Government contracts for military trailer equipment.

The Fisher Brass Foundry Co., 228 Muskego Avenue, Milwaukee, manufacturer of brass and aluminum castings, announces that its business will hereafter be conducted under the name of the L. D. Fisher Co. There is no change in ownership or management.

## Detroit

DETROIT, NOV. 11.

Machine-tool dealers and prominent manufacturers are agreed that there will be little or no abatement in the demand for machine tools when peace comes. No industrial disarrangement is expected, but rather the resumption of the ante-war basis on a greater scale than before.

Lathes, especially the larger type, milling, grinding and boring machines continue in active demand.

Among Michigan concerns to receive Government orders are: Detroit Lubricator Co., lubricators; Ford Motor Co., switches and passenger cars; Detroit Twist Drill Co., drills; Penberthy Injector Co., injectors; Welded Steel Barrel Co., barrels; Standard Motor Truck Co., Denby Motor Truck Co., Signal Motor Truck Co., Lewis-Hall Iron Works, and J. C. Wilson Co., trucks and bodies; Victor Screw Works, screws; Detroit Hoist & Machine Co., electric hoists; Precision Instrument Co., dial manometers, all of Detroit; the Clark Equipment Co., Buchanan, drill bits; O. J. Beaudette Co., and the Monroe Body Co., Pontiac, bodies; Wilson Foundry & Machine Co., Pontiac, engine spares; Field Motor Co., Owosso, bodies; Champion Ignition Co., Flint, spark plugs; Dort Motor Car Co., Buick Motor Co., and the W. F. Stewart Co., Flint, bodies; Republic Motor Truck Co., Alma, trucks; Grand Rapids Airplane Co., Grand Rapids, tools, jigs, dies; United Motors Co., Grand Rapids, truck chassis; Grand Rapids School Equipment Co., Grand Rapids, bodies.

The Paige-Detroit Motor Car Co., Detroit, announces that it is ready to put on the market trucks for domestic commercial consumption, and distribution of a limited number will shortly commence.



The Stuart Foundry Co., Detroit, has been organized by A. W. Sampliner, L. J. Maroska and M. W. Smith with a capital stock of \$100,000. A site for the plant is said to have been selected and it is expected that construction will start soon.

C. B. McCole, Kalamazoo, Mich., sheet metal-work manufacturer, who has a Government contract for truck fenders, announces that he will immediately double the capacity of his plant to take care of the orders.

The plant of the National Spring & Wire Co., Albion, Mich., has been sold to S. C. Ginsburg and F. C. Genge, majority stockholders of the Ventilated Mattress Co., Chicago. Immediate possession is given.

Work has been started on the foundation for the new shop of the Industrial Works, Bay City, Mich. The building will be of steel and concrete, with a frontage of 260 ft. and width of 117 ft. The Austin Co., Cleveland, has the contract, and agrees to complete the building in 65 working days.

The Great Lakes Engineering Works, Wyandotte, Mich., is increasing its force from 2800 to 4000 men to take care of new Government work recently awarded. A \$150,000 machine is being built, where employees will be served with meals at cost.

The Michigan Steel Castings Co., Detroit, has increased its capital stock from \$400,000 to \$500,000.

The Gray Motor Co., Detroit, will erect an addition to its plant.

The Groh Castings Co., Detroit, will build a \$1,000 addition.

The Anderson Forge & Machine Co., Detroit, will build a boiler house.

The Packard Motor Car Co., Detroit, will spend \$700,000 for an additional unit, 227 x 323 ft., at Harper and Strong avenue and \$75,000 for an enameling plant, 150 x 200 ft.

The Acme Motor Truck Co., Cadillac, Mich., has announced that it has purchased the plant and equipment of the Cadillac Machine Co. at Cadillac. It is now designated as plant No. 2 and will be devoted to the production of steel bodies and truck frames.

## Cleveland

CLEVELAND, NOV. 12.

Prospects of an early peace resulted in a number of cancellations of machinery orders the past week. These were largely for lathes, orders for which were placed some time ago with a cancellation provision. The buyers asked manufacturers to take orders for additional shell-making machinery, on much of which deliveries were not to be made until next spring, with the stipulation that should peace come or should there be a prospect of an early termination of the war the contracts should be canceled. Other cancellations include machinery on which deliveries have been set back by manufacturers in some cases several times and the buyers on that account feel that there can be no objections to cancellation of the orders. One machinery house reports cancellations amounting to about \$200,000.

New demand has fallen off materially as a result of the probability of an early peace, although dealers report a fair volume of single tool orders. The International Harvester Co. placed an order the past week for 30 turret lathes, and, in addition, a fair volume of business came out in orders for machine tools.

The prospects for peace seem to have caused the placing of considerable second-hand machinery upon the market by manufacturers, who apparently feel that this used machinery can be disposed of more readily now than after the war.

The Aluminum Castings Co., Cleveland, has commenced the erection of additional buildings in connection with its Harvard Avenue plant. One building, 90 x 120 ft., will be used for a melting department; another, 70 x 240 ft., one and two stories, for sand storage, and a third, 120 x 280 ft., will contain the finishing and shipping department.

The Electrical Mfg. Co., 112 Hamilton Avenue, Cleveland, has purchased from the receivers of the Ri-Chard Automobile Co. five acres of the Ri-Chard property and the manufacturing building, 80 x 120 ft. The main building, 110 x 220 ft., is still in the hands of receivers.

The Toledo Steel Barrel Co., Toledo, Ohio, has been consolidated with the Detroit Range & Boiler Co., Detroit, Mich. The Toledo plant is engaged on Government orders for steel barrels.

The American Forge & Machine Co., Canton, Ohio, has recently taken a large Government order for forged parts for trench mortars.

It is announced that the Garford Motor Truck Co., Lima, Ohio, contemplates enlarging its plant by the erection of a

building, 100 x 500 ft. It has recently taken an additional Government order for 4000 2-ton motor trucks.

It is announced from Fostoria, Ohio, that the control of the Keasey Mfg. Co. of that city has passed into new hands and will be reorganized. The company has leased a portion of its plant to the S-C Regulator Co., manufacturer of regulators for steam boilers.

The Canton Steel Foundry Co., Canton, Ohio, which recently increased its capital stock from \$350,000 to \$980,000, is enlarging its plant. It is owned by the Morgan Engineering Co., Alliance, Ohio, and is engaged in making heavy castings for cannon bombs.

## The Central South

LOUISVILLE, NOV. 11.

The National Hame & Chain Co., New Albany, Ind., has purchased the hame department of the Nixdorf-Krein Mfg. Co., St. Louis, and will move the equipment to the New Albany plant.

The Kentucky Wagon Mfg. Co. has started work on a small brick addition to its forging shop. During the year the company added a drop forging department.

The Roy C. Whayne Supply Co., Louisville, is asking prices on a 15-ton standard gage locomotive crane, 50 ft. boom, complete with 2-yard clam shell bucket, new or second hand.

The Kentucky Fuel & Oil Co., Jackson, Ky., recently incorporated with a capital of \$99,000, will purchase oil well drilling equipment.

The Thornton Trolley Wheel Co., Ashland, Ky., capital \$250,000, has been incorporated by Fred Thornton, T. M. Adams and others to manufacture street car supplies.

John G. Duncan & Co., Knoxville, Tenn., are in the market for crushers and rolls for handling ore and desire prices on two 100 to 125-hp. return tubular boilers.

M. B. Parker, Chattanooga, Tenn., wants prices on a second-hand 60 to 70-ton Bucyrus shovel, and 60 in. gage Porter saddle tank locomotive.

The plant of the Montgomery Light & Traction Co., Montgomery, Ala., has been acquired by Isadore Newman & Sons, New Orleans, La., for about \$2,000,000. The new owners are planning for extensions and improvements to cost about \$200,000.

The Vacuum Dyeing Co., Chattanooga, Tenn., has been incorporated with a capital of \$20,000 to manufacture machinery. C. C. Brownlee and D. C. Rogers, Chattanooga, are the principal incorporators.

The new plant under construction by the Everett Moses Co., Birmingham, Ala., will be operated under the name of the Welded Products Co., with Everett Moses as president and general manager. The plant will be 90 x 200 ft., and equipped with plate bending rolls, shearing machines, etc.

The Southern Sewer Pipe Co., Twenty-eighth Avenue, Birmingham, Ala., is planning to rebuild its machine shop recently destroyed by fire with loss of about \$20,000. C. R. Beasley is manager.

It is announced by Tampton Aubuchon, general manager Louisville Industrial Foundation, Inc., Columbia Building, Louisville, Ky., that the Million Dollar Factory Fund of Louisville has appointed a special committee representing several large manufacturing companies to negotiate with manufacturers of tools, dies, wood and metal patterns, with the view of establishing a tool and pattern plant in the Louisville industrial district. The need of a local high-class pattern and tool shop is accentuated by the unprecedented growth of 59 metal working plants in this district during the past few years.

## St. Louis

ST. LOUIS, NOV. 11.

The Home Electric Co., Eureka Springs, Ark., B. H. Blocksom, F. A. Butt and others interested, has acquired the Eureka Springs Electric Co.'s properties and will increase the equipment.

The Choctaw Power & Light Co., McAlester, Okla., will equip an electric light and power plant at Hartshorn, Okla.

The Hale Kerosene Carburetor Co., Independence, Mo., E. J. Killen, Omaha, Neb., and J. A. Abbott, Kansas City, Mo., interested, will equip a plant for the manufacture of carburetors.

The City Engineering Department, Kansas City, Mo., will equip a machine shop at the Quindaro pumping station of the waterworks plant.

C. P. Slater, Drumright, Okla., will equip a plant at Tulsa, Okla., to build turnbuckle rigs, pipe derricks and pulling machines.

The Independent Packing Co., Tulsa, Okla., 25 East Twelfth Street, will install engines, boilers and other machinery in a refrigerating plant.

The Lock Moore Co., Westlake, La., will equip a saw-mill at a cost of \$200,000.

Pfaeffle & Kelly, Chitwood, Mo., will expend \$50,000 on new equipment, including engines, compressors, etc., for their 250-ton milling plant.

## Cincinnati

CINCINNATI, NOV. 11.

The cancellation of stock orders for machine tools is reported to be on the increase. Machine-tool builders are not inclined to accede to these requests and are insisting that the buyer accept machines that were ordered. Fortunately the number of these cancellation requests is not very large, but indications are that they will increase unless some definite understanding can be reached between the buyer and the seller. Cancellation of machine tools and other machinery for the Alameda shipyard will probably be accepted without protest, except in cases where material had been contracted for to build the machines. It is rumored that some of these contracts may be transferred and the machines shipped to other yards. Shipments for Neville Island are being held up, but it is not known where they will be diverted. So far only a comparatively few cancellations have been received from shell making concerns and none from the Navy Department.

A prominent local machine-tool builder believes that a happy solution of the readjustment period would be for the Government to transfer machines from munitions or other plants, where they may not be needed in the near future, to plants engaged in essential peace work. In cases where single purpose machines are involved the specifications could be changed for standard machines.

Particular attention is being paid to the possibilities of the export trade. Firms that heretofore looked on South America as a very limited field for machine tools have found upon investigation that the market is one that should not be overlooked.

Crane manufacturers at Columbus, Ohio, make a very optimistic report as to business. Quite a number of cranes of different capacities have been ordered lately, and several inquiries for shop cranes are still pending.

The Ferro Concrete Construction Co., Cincinnati, has received contract for a four-story reinforced concrete building, 45 x 225 ft., to be erected at King's Mills, Ohio, for the Peters Cartridge Co., a Cincinnati firm. It has not yet been announced for what purpose it will be used.

The Cincinnati Machinery Co., Cincinnati, rebuilder of second-hand machinery, has purchased a building at 324-326 East Second Street, where a branch plant will be established. John H. Flynn, Jr., is president.

The Dayton Steel Foundry Co., Dayton, Ohio, has increased its capital stock from \$50,000 to \$750,000. No official details have been given out relative to additions to the plant.

The Platt Iron Works Co., Dayton, has taken out permit for an addition estimated to cost \$21,000.

The H. G. Root Co., Springfield, has increased its capital stock from \$25,000 to \$100,000. The company manufactures automobile accessories.

The municipality of Greenup will rebuild its electric light plant, recently destroyed by fire.

The Wellston Ice Co., Wellston, has been incorporated with \$75,000 capital stock by S. S. Wortley, Jr., and others.

## San Francisco

SAN FRANCISCO, NOV. 5.

Talk of an early peace is having a decided effect upon the machinery market in this section. In the past two weeks there has been a marked falling off in the demand and in more than one case negotiations for large machines were stopped, the intending purchaser asserting that he believed in the event of peace he would be able to buy the machine at a lower price. It is generally felt that the end of the war will be followed by a greatly lessened demand for the larger tools, but that the call for small tools will increase, as many enterprises, which have been held up by the war, will then be carried through. Shipments from the East are easier. The Union Iron Works, Los Angeles, which has a contract for tanks for the Emergency Fleet Corporation, was in the market recently for punches, bevel shears and other tools. Several San Francisco representatives bid on the contract, but did not feel like guaranteeing early shipment. The order was placed in the East and immediate shipment guaranteed.

Advices from Manila state that the Philippine Govern-

ment is making an effort to stimulate shipbuilding, particularly such ships as are adapted to inter-island trade. The efforts are said to be meeting with success and seven yards are now turning out vessels of approximately 250 tons. Some of these are being powered with motors of the oil engine type, as there is plenty of this kind of fuel on the islands.

The Bear Tractor Corporation, San Francisco, recently organized, has received permission to sell 10,000 shares of its stock for the manufacture of a newly developed Bear Farm tractor.

The B. & C. Machinery Co., Hayward, Cal., is erecting an addition, 100 x 300 ft., in a portion of which new machinery will be installed. The improvements will aggregate \$50,000.

The Emergency Fleet Corporation has ordered the construction of seven sea-going tugs with 1000-hp. engines for service in and about San Francisco bay. The hulls are to be built at the shipyards of W. F. Stone, Oakland, which are being enlarged to handle the contract. The Main Iron Works, San Francisco, will build the engines.

## Texas

AUSTIN, NOV. 7.

McBride & Law, Beaumont, who are building ships for the Government, will soon build a dry dock and ship repair yard at Port Arthur.

The recent order of the Emergency Fleet Corporation canceling all contracts for barges for the Government, caused the Neches Shipbuilding Co., Beaumont, to close its plant.

The Itasca Ice Co., Itasca, which was recently incorporated, will build an ice plant at a cost of \$20,000. Ed Woodall is a stockholder.

The Tex-I-Grip Co., San Antonio, will equip a plant for the manufacture of an automobile device.

The France & Canada Oil Transport Co. has awarded contract for the construction of a number of concrete barges to the MacDonald Engineering Co., Chicago, which has plans for the construction of shipyards at Aransas Pass. The barges are to be 270 ft. long, 33 ft. beam, and to have a displacement of 3500 tons.

Mrs. W. L. Moreland, Hearne, will install an irrigation pumping plant on the Brazos River near that place.

Edward C. Ryan, Ballinger, and associates will erect warehouses, piers and construct shipbuilding yards on Harbor Island, near Port Aransas.

The waterworks plant, Palestine, which was recently purchased by the city, is to be enlarged and new machinery installed.

## Canada

TORONTO, NOV. 11.

The United States & Canada Transport & Trading Co., Ltd., Toronto, has been incorporated with a capital stock of \$2,500,000 by Joseph M. Bullen, Norman S. Robertson, Wendell Osborne and others to build ships, machinery, etc.

The Fraser, Brace Shipyards, Ltd., Montreal, has been incorporated with a capital stock of \$750,000 by Darley B. Smith, Frank M. Jordan, Charles G. Macartney and others to build steel ships, machinery, etc.

The Pulp & Paper Mills Supply Co., Ltd., Montreal, has been incorporated with a capital stock of \$150,000 by Thomas J. Coulter, William S. Jones, Percival W. Peacock and others to manufacture pulp, paper, etc.

The Dillon Crucible Alloys, Ltd., Welland, Ont., has increased its capital from \$100,000 of preferred stock and 2000 shares of common stock without nominal or par value to \$500,000 preferred stock and 5000 shares of common stock without nominal or par value.

The Halifax Shipyards, Ltd., Halifax, N. S., has increased its capital stock from \$6,000,000 to \$10,000,000.

The United Iron Works & Machine Co., Ltd., Halleybury, Ont., has been incorporated with a capital stock of \$500,000 by Axel B. Ullhorn, George G. T. Ware, both of Halleybury, Philip Joannis, Cobalt, Ont., and others to manufacture machinery, engines, vehicles, etc.

The Alloy Steel Works, Ltd., Toronto, has been incorporated with a capital stock of \$1,500,000 by Reginald H. Parmenter, Arthur J. Thomson, Samuel D. Fowler and others to manufacture machinery, etc.

The John Deere Plow Co. of Welland, Ltd., and the Dain Mfg. Co., have amalgamated to manufacture implements, machinery, etc. The capital stock will be \$1,000,000 and the head office will be at Welland. Among the directors are

William Jutterworth, George W. Mixer, Burton F. Peek, Melroe, Ill., and others.

Work has begun on an addition to the plant of the Galt Machine Screw Co., Beverly Street, Galt, Ont., to cost \$10,000.

Foundations have been started for an addition to the machine plant for the Page-Hersey Iron & Tube Co., York Road, Guelph, Ont., to cost \$50,000. W. J. Hebden is general contractor.

P. S. Walker, 14 Church Street, St. John, N. B., has the contract for alterations and additions to the power plant at St. John for the Department of Public Works, Ottawa, Ont. He is in the market for a 75 hp. tubular boiler, two pumps and one 500-gal. Kelly tank.

Work is to start immediately on power development costing \$2,000,000 at Turbine, Ont., for the International Nickel Co., Copper Cliff, Ont. The Fraser Brace Co., 83 Craig Street, West, Montreal, has the contract.

The new plant of the Lyall Construction Co., Montreal, which was erected for the manufacture of shells for the United States Government, has begun operations, although only a portion of the machinery has been installed. The company's Westmount plant is working to capacity.

The National Shipbuilding Co., Ltd., Goderich, Ont., is in the market for a belt-driven air compressor about 8 x 8 in. cylinder, lathe, 12 ft. between centres; two 10-ton hand operated traveling cranes, 38 ft. span.

L. H. Carley, Kingsville, Ont., proposes to build boat works on the harbor front to cost about \$50,000.

The Cushman Motor Works of Canada, Ltd., Princess Street, Winnipeg, manufacturer of agricultural implements, machinery, gasoline engines, etc., has increased its capital stock from \$100,000 to \$500,000.

Plans are being prepared for shipyards at Port Haney, B. C. for the Standard Shipbuilding Co., Dominion Building, Vancouver, B. C. J. P. Donohue is manager.

The new plant of the Lyall Construction Co., Montreal, which is being erected to handle large orders for shells from the United States Government, is nearing completion and will shortly be ready for the installation of machinery.

The Valley Lumber Co., Minnedosa, Man., is having plans prepared for the erection of a mill to cost about \$50,000. W. Bridgeman is manager.

The Elburne Sawmills, Ltd., Point Grey, B. C., whose plant was recently destroyed by fire, is having plans prepared for the erection of new mills to cost about \$40,000.

## The Pacific Northwest

SEATTLE, Nov. 5.

The recent announcement by Chairman Hurley that shipbuilding will continue with unabated activity for at least two years after the war, has had a direct influence on the industrial situation. Many extensions will be made to marine shops and industrial plants depending directly upon shipyards for contracts.

The machine shop, boiler shop and metal-working equipment of the Nisqually Iron Works, Tacoma, has been commandeered by the Government for the spruce division terminals at Toledo, Ore.

The Black Diamond Lumber Co., Winlock, Wash., is making a number of improvements to its plant. The mill has a daily capacity of 150,000 ft., of which 90 per cent is taken by the Government. A new dam costing \$10,000 is being built; a large timber planer, costing \$12,000 added, and a resaw equipment costing \$6,500.

Davis & Driscoll, Kalispell, Mont., are planning the erection of a sawmill at Eureka, to have a daily capacity of 25,000 ft.

The Northwest Steel Co., Portland, will erect a joinder shop, 70 x 280 ft., to cost \$22,500. Contract has been awarded.

The Western Machinery & Equipment Co., Spokane, contemplates additions to its plant and warehouse.

The Reliance Wire & Iron Works and the Northwest Felt & Supply Co., Portland, have been consolidated and will occupy a three-story brick building at East Tenth and Flinders streets.

## Government Purchases

WASHINGTON, Nov. 11.

The Bureau of Yards and Docks, Navy Department, Washington, is preparing specifications for the following work at Navy yards:

Specification 3167, Bay Shore, Long Island—2 steam-driven electric generators; 3168, Hampton Roads—derrick,

platform and runway; bids to be opened at yard; 3180, Philadelphia—four boilers; 3240, Mare Island—electric traveling crane for structural shop; 3260, Hampton Roads—coal handling machinery; 3328, Hampton Roads—mechanical equipment; 3345, Philadelphia—machinery and electric shop; 3372, Bellevue, D. C.—electric crane; 3389, Pensacola, Fla.—power plant improvements; 3424, Islamorada, Fla.—refueling station; 3458, Great Lakes, Ill.—power house; 3475, Great Lakes—2 power houses; 3477, Boston—electric traveling crane for extension to machine shop and foundry building No. 2; 3478, Philadelphia—pattern shop; 3486, Nantes, N. C.—refueling station; 3487, Assateague, Va.—refueling station; 3503, Ward's Island—stokers for power house; 3516, Phillipsburg, N. J.—supply base; 3533, Boston—mechanical equipment and piping and boiler plants; 3576, Philadelphia—coal and ash handling plant; 3585, Hampton Roads, Va.—boiler house; 3586, Norfolk and Philadelphia—mechanical stokers; 3589, Portsmouth—extension to machine shop; 3607, New York—coal and ash handling equipment; 3609, New York—2 electric traveling cranes for machine shop and electric shop; 3612, Chatham, Mass.—boiler house; 3627, Alexandria, Va.—torpedo-assembling plant, electric traveling crane; 3630, San Francisco—one 125 hp. boiler; 3632, New York—extension to power plant; 3640, Bellevue, D. C.—electric traveling crane; 3643, Bellevue, D. C.—electric traveling crane; 3644, Ward's Island, N. Y.—blowers and steam connectors.

Bureau of Supplies and Accounts, Navy Department, Washington. Sealed proposals are wanted under schedules as indicated below. Where no date is shown the time of opening will be in the near future.

Schedule 3515, Eastern and Western yards—screw machines; 6710½, Philadelphia—1 screw machine; 6821½, Brooklyn—motor-driven hacksaws; 6847½, Washington—drill grinding machines; 6894½, Norfolk—rotary shears, opening Nov. 22; 6895½, Brooklyn—vertical shapers; 6896½, f.o.b. works, tool grinding machine, heavy type miller, engine lathe and lathe tool sets, opening Nov. 22; 6897½, Brooklyn—engine lathes; 6901½, f.a.s. San Francisco—centrifugal pump; 6905½, Boston—equipment for machine tools; 6911½, Coconut Grove, Fla.—auto crane, opening Nov. 18; 6912½, f.o.b. works—10 generators, opening Nov. 22; 6913½, Philadelphia—6 bench type drills, opening Nov. 22; 6918½, Washington—motor generator set, opening Nov. 18; 6922½, Washington—tapping chucks; 6924½, New London—single, surfacer, pattern maker's vises, wood trimmer, grinding and boring machines, disc sander, double wood-turning and speed lathes, planer and joiner and band sawing machines, opening Nov. 18; 6926½, f.a.s. San Francisco—chain hoists, opening Nov. 18; 6932½, Norfolk—motor generators, opening Nov. 22; 6944½, San Diego—1 grinding motor, 1 arbor press and 1 turning machine; 6946½, New Orleans—1 elbow edging machine; 1 hand punch, 1 spot welding machine, 1 drill power press and 1 single shear; 6946½, Washington—2 die sinkers, engine; 6953½, Puget Sound—1 steel bolt heading machine; 6954½, Boston—1 engine and precision lathe drill, 1 bench grinder and 1 shaper; 6959½, Norfolk—5 duplex steam pumps, opening Nov. 28; 6962½, Norfolk—1 crank pin machine, opening Nov. 22.

## NEW TRADE PUBLICATIONS

**Sandblast Equipment.**—American Foundry Equipment Co., 52 Vanderbilt Avenue, New York. Catalog. Presents illustrations and descriptions of an extensive line of special and standard sandblast rooms and machines. The special principle upon which the company's machines work is described and is followed by a description of two types of rotary sandblast rooms, the text being supplemented by numerous views of the rooms in use. Mention is made of a line of special sandblast rooms for work that cannot conveniently be handled on a rotary table and an automatic sandblast tumbling barrel.

**Lubricant Pumps.**—Fulke Pump Co., Blanchester, Ohio. Circular. Concerned with a pump for handling lubricants which can be arranged to deliver at rates varying from 15 gal. per min. to a single drop. The construction of the pump is gone into at some length and several views of it in use are presented.

**Galvanizing.**—Galvanizing Corporation of America, 244 Eagle Street, Brooklyn, N. Y. Pamphlet. Gives in plain and concise language a description of what electro galvanizing is and the limitations of the process. The solution and apparatus of the company are referred to and the advantages of the former which include the deposition of chemically pure zinc, ability to treat articles of any size and shape and the elimination of any heat in the process are touched upon. Considerable useful information on the methods of figuring the equipment required for galvanizing is included.



# Current Metal Prices

On Small Lots, from Merchants' Stocks, New York City

The quotations given below are for small lots, as sold from stores in New York City by merchants carrying stocks.

As there are many consumers whose requirements are not sufficiently heavy to warrant their placing orders with manufacturers for shipment in carload lots from mills, these prices are given for their convenience.

## Iron and Soft Steel Bars and Shapes

### Bars:

	Per lb.
Merchant iron, base price	4.77c
Refined iron, base price	6.27c
Burden's H. B. & S. bar iron, base price	6.40c
Burden's Best bar iron, base price	6.60c
Norway Bars, base price	20.00c

### Soft Steel:

$\frac{3}{4}$ to 1 $\frac{1}{2}$ in., round and square	4.17c
1 to 6 in. x $\frac{3}{8}$ to 1 in.	4.17c
1 to 6 in. x $\frac{1}{4}$ and 5/16	4.27c
Rods— $\frac{3}{8}$ and 11/16	4.27c
Bands—1 $\frac{1}{2}$ to 6 x 3/16 to No. 8	4.77c

### Shapes:

Beams and channels—3 to 15 in.	4.27c
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### Angles:

3 in. x $\frac{1}{4}$ in. and larger	4.27c
3 in. x 3/16 and $\frac{1}{8}$ in.	4.52c
1 $\frac{1}{2}$ to 2 $\frac{1}{2}$ in. x $\frac{1}{8}$ in.	4.32c
1 $\frac{1}{2}$ to 2 $\frac{1}{4}$ in. x 3/16 in. and thicker	4.27c
1 to 1 $\frac{1}{4}$ in. x 3/16 in.	4.32c
1 to 1 $\frac{1}{4}$ in. x $\frac{1}{8}$ in.	4.37c
$\frac{7}{8}$ x 1 $\frac{1}{8}$ in.	4.42c
$\frac{3}{4}$ x $\frac{1}{8}$ in.	4.47c
$\frac{5}{8}$ x $\frac{1}{8}$ in.	5.27c
$\frac{1}{2}$ x 3/32 in.	5.97c

### Tees:

1 x $\frac{1}{8}$ in.	4.67c
1 $\frac{1}{4}$ in. x 1 $\frac{1}{4}$ in. x 3/16 in.	4.57c
1 $\frac{1}{2}$ to 2 $\frac{1}{2}$ x $\frac{1}{4}$ in.	4.37c
1 $\frac{1}{2}$ to 2 $\frac{1}{2}$ x 3/16 in.	4.37c
3 in. and larger	4.82c

### Merchant Steel

	Per lb.
Bessemer machinery	4.17c
Tire	4.17c
Toe calk	5.75c
Open-hearth spring steel	8.00c
Standard cast steel, base price	16.00c
Extra cast steel	18.00 to 20.00c
Special cast steel	23.00 to 25.00c

### Tank Plates—Steel

$\frac{1}{4}$ in. and heavier	4.52c
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### Sheets

#### Blue Annealed

	Per lb.
No. 8 and 3/16 in.	5.47c
No. 10	5.52c
No. 12	5.57c
No. 14	5.62c
No. 16	5.72c

#### Box Annealed—Black

	One pass, C. R. Wood's soft steel, per lb.	refined, per lb.
Nos. 18 to 20	6.32c	
Nos. 22 and 24	6.37c	7.62c
No. 26	6.42c	7.67c
No. 27	6.47c	
No. 28	6.52c	7.82c
No. 29	6.57c	
No. 30	6.67c	
Genuine Russia, as per assortment	22 $\frac{1}{2}$ @ 25c	
Patent planished, W. Dewees Wood,		
A 13 to 13 $\frac{1}{4}$ c; B 11 to 11 $\frac{1}{4}$ c net		

#### Galvanized

	Per lb.
No. 14	6.87c
No. 16	6.72c
Nos. 18 and 20	7.17c
Nos. 22 and 24	7.32c
No. 26	7.47c
No. 27	7.62c
No. 28	7.77c
No. 30	8.27c
No. 28, 36 in. wide, 10c. higher.	

### Corrugated Roofing, Galvanized

2 $\frac{1}{2}$  in. corrugations, 10c. per 100 lb. over flat sheets.

### Tin Plates

#### Charcoal Plates

AAA charcoal:

	Per box
IC 14 x 20	Nominal

On a number of articles the base price only is given, it being impossible to name every size.

The wholesale prices at which large lots are sold by manufacturers for direct shipment from mills are given in the market reports appearing in a preceding part of THE IRON AGE under the general headings of "Iron and Steel Markets" and "Metal Markets."

IX 14 x 20	Per box
A charcoal	Nominal
IC 14 x 20	Nominal
IX 14 x 20	Nominal

### Coke Plates—Bessemer

IC 14 x 20, 107 lb.	Nominal
IX 14 x 20	Nominal

### Terne Plates

IC 20 x 28 with an 8-lb. coating	Nominal
IX 20 x 28 with an 8-lb. coating	Nominal

### Brass Tubes, Rods and Wire, and Copper Tubes

Manufacturers have withdrawn all quotations because of unsettled prices of raw materials and will only name prices to actual buyers.

### Copper Sheets

Sheet copper, hot rolled, 16 oz., 40c. to 45c. per lb. from limited stock now on hand (only to customers doing essential work).

Cold rolled, 14 oz. and heavier, 1c. per lb. advance over hot rolled.  
Polished, 20 in. wide and under, 1c. per sq. ft. extra; over 20 in. wide, 2c. per sq. ft. extra.  
Planished copper, 1c. per sq. ft. more than polished.  
Tinning, one side, 6c. per sq. ft.

### Copper Wire

Base price, at mill	38c
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### Tin

Straits pig	Nominal
Bar	Nominal

### Copper

Lake Ingot	27.30c
Electrolytic	27.30c
Casting	27.30c

### Spelter and Sheet Zinc

Western spelter	11 to 12c
Sheet zinc, No. 9 base, casks	17c; open 17 $\frac{1}{2}$ c

### Lead and Solder\*

American pig lead	8.80c
Bar lead	9 $\frac{1}{2}$ to 10c
Solder $\frac{1}{2}$ & $\frac{1}{2}$ guaranteed	55c
No. 1 solder	49c
Refined solder	41c

\*Prices of solder indicated by private brand vary according to composition.

### Babbitt Metal

Best grade, per lb.	95c
Commercial grade, per lb.	50c

### Antimony

Asiatic	16c to 18c
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### Bismuth

Per lb	\$4.50 to \$5.00
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### Aluminum

No. 1 aluminum (guaranteed over 99 per cent, pure), in ingots for remelting (carload lots), f.o.b. mill, per lb.	32.10c
In small lots	40 to 45c

### Old Metals

We are unable to report intelligent prices this week owing to the fact that practically no transactions have taken place. We are therefore quoting nominally the same prices as last week.

	Cents Per lb.
Copper, heavy and crucible	23.00 to 24.00
Copper, heavy and wire	22.00
Copper, light and bottoms	20.00 to 20.50
Brass, heavy	13.50 to 14.00
Brass, light	10.50 to 11.00
Heavy machine composition	22.50 to 23.00
No. 1 yellow brass turnings	14.00 to 14.25
No. 1 red brass or composition turnings	19.50 to 20.00
Lead, heavy	7.50
Lead, tea	6.00
Zinc	6.50

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